

A TREATISE

ON

GOUT,

APOPLEXY, PARALYSIS, AND DISORDERS

OF

The Nervous System.

BY

A. RENNIE, SURGEON, &c.

“Igitur ii, qui rationalem medicinam profitentur hæc necessaria esse proponunt; abditum et morbos continentium causarum notitiam, delinde evidentium, post hæc etiam naturalium actionum novissime partium interiorum.”

CELSUS, lib. i, p. 4.

LONDON:

PRINTED FOR BURGESS AND HILL,
Medical Booksellers,
GREAT WINDMILL STREET, HAYMARKET;
AND HATCHARD AND SON, PICCADILLY.

1828.

LONDON:
PRINTED BY CHARLES WOOD AND SON,
Poppin's Court, Fleet Street.

P R E F A C E.

THE prevalence of gout, apoplexy, and other diseases termed nervous, in the present state of society, is the only apology the author will offer for the following pages. The increasing frequency of apoplexy, in particular, has of late years been a subject of universal remark. Various causes may be assigned for the prevalence of this formidable, and too often fatal malady; but to enter on this question at the present stage of the inquiry would be premature.

The first and most essential object in the ensuing Treatise is to ascertain on physiological principles, aided by practical observation, what are the remote and insidious causes which dispose the constitution to the disorders referred to.

A correct view of the disposing causes of any disease affords the only sure means of prevention; and the removal or counteraction of these causes is indispensable to a safe and effectual method of cure.

As it is the author's intention to continue the investigation, a Second Part will be published towards the close of the current year.

2, Hertford Street, Mayfair,

March 12, 1828.

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ERRATUM.

Page 26, line 9, for *sterile*, read *sterili*.

A

TREATISE ON THE GOUT,

&c. &c.

ARRANGEMENT OF THE SUBJECT.

No disease of which the constitution is susceptible, arises under greater diversity of circumstances, or assumes a greater variety of forms, or occurs in more various complications than the GOUT. These characteristics of the disorder present great difficulties in forming any useful nosological classification, and indicate the necessity of being guided in the arrangement of the subject, rather by a regard to practical principles than by those artificial distinctions, which depend on mere theory, or those endlessly diversified views which are suggested by its proteiform symptoms.

The opinions entertained on the nature of *gout*, are in fact almost as various as the constitutions in which the malady appears. Every invalid who is harassed by the capricious and unaccountable visitations of its tortures has formed to himself a particular theory: this theory is by a little further experience found to be fallacious; as the disease goes on to assume new characters, a new view of its nature must be adopted. This, however, is soon relinquished to give place to another, more reconcileable with the symptoms which characterize the next attack. The suffering theorist thus continually disconcerted and driven from one notion to another, at length arrives at the settled conviction, that notwithstanding the various and painful experience he has had of the *gout*, he is, at the end of twenty or more years,

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just as much in the dark as to its real nature as at the first moment he was seized.

In this embarrassing uncertainty, the invalid under gout looks in vain to medical treatises and consultations for a satisfactory explanation of his case. Every author and physician who thinks for himself, entertains, it is true, a particular theory of the disease—but these are to the full as various and changeable as any his own fanciful imagination ever coined; insomuch that physicians of the greatest eminence will seldom be found to agree with each other on any thing but observation of facts. In their conclusions they are often quite contradictory to each other. Men of no mean attainments, and of well-earned celebrity as pathologists, will tell him flatly they know nothing about *the nature* of gout; and yet there are treatises to be met with, in which the disorder is as regularly arranged and classified, as a plant or a mineral, whose properties and characters are universally understood. Such inconsistency is so glaring as to excite doubt and suspicion as to the soundness of all that is advanced on the pathology of the disease.

In the present state of our knowledge it is plain, that any attempt at a strictly nosological classification is premature, and must fetter rather than facilitate inquiry: after the nature of the disease is clearly demonstrated, it will not be too late to propose some classification. In the arrangement that follows, therefore, my chief object is practical convenience, in the description of gout, in the pathological inquiry into its *causes* and *nature*, and in establishing sound principles of *cure*.

The unmeaning and injudicious application of the term *gout*, a word of fanciful origin, and used chiefly to denote the local disorder when occurring external, has contributed much to embarrass pathologists in their attempts at classification, and is calculated to mislead inquirers into very imperfect and limited views of the nature of the dis-

ease. The attention has been diverted from the disease itself, to that which is merely a secondary and symptomatic affection; the primary constitutional disorder, essentially constituting the fit, having been in a great measure overlooked, while the local disorder, which is really secondary, has been regarded as the principal and primary derangement.

To the same source may be traced an important defect in every arrangement of the disease hitherto proposed; due distinctions have not been made and preserved betwixt what may be termed the gouty diathesis, disposition, or tendency, and the actual disorder of the fit. Whereas these states of constitution are essentially different, and ought to be marked by a broad line of demarcation. The causes which produce the gouty disposition are generally very distinct from those which excite the fit. The symptoms indicating the mere disposition to gout are also very different from those which occur when the disease is developed. The methods of curing the two states of disorder are still more widely different, and sometimes directly opposite. An invalid may possess all the peculiarities of the gouty disposition, from habitual exposure to the disposing causes of the disease, and yet for months or years entirely escape any actual fit. Those who are subject frequently to attacks, enjoy intervals of freedom, in which no decidedly gouty symptom is felt; still they possess the diathesis: and that sometimes so strongly, that the slightest exciting cause will induce the fit. He who possesses the gouty disposition merely, and is anxious to get cured of it, must pursue a very different course from him who actually labours under a fit, and wishes to be cured of that; he must not only prevent the fit to which he might be liable by avoiding the exciting causes; but he must farther adopt means calculated to restore that morbid peculiarity of constitution, which renders him subject to the specific disorder called gout. This he can hope

to accomplish only by avoiding all the disposing causes of the disease; by counteracting their effects where they are unavoidable; and by restoring the constitution when it has already suffered from their operation. I believe it will be found, that it is from want of due attention to these important distinctions, that so many different views have been entertained of the nature of gout, and so many contradictory methods of treatment have been resorted to. Most of these may have been occasionally serviceable, but not one has been found generally or permanently successful; and for very obvious reasons—they have not been suggested by any clear, sound, and comprehensive acquaintance with the true causes and nature of the disease, but simply by a desire to combat its more prominent and severe symptoms. Partial or occasional relief in this way, obtained for the most part at first by mere accident, has gained to certain remedies an unmerited popularity, and has led even medical practitioners rather to confide in the limited, deceptive, and uncertain experience of occasional cases of success, than to inquire into and establish the principles on which this or that remedy has produced its results.

The way to discover a safe and effectual method of curing any disease is surely not to go hunting after fancied specifics, applying them in every fresh case that occurs with a blind and uncertain temerity. This, in fact, is nothing else than to make the human constitution a subject of empirical experiments: and if ever disease has given scope for experimenting with rash and hazardous remedies, the gout is that disease. What with rules of abstinence and starvation, cold applications, the Portland powder and other indiscriminate tonics, the eau medicinale, colchicum, and such other deleterious narcotics producing temporary relief but real and irretrievable injury,—it may be truly said, that remedial measures indiscreetly used for the cure of gout have shortened more lives than the disease itself would have done. Common sense and the sad experience

of numberless unfortunate cases, therefore, alike admonish us no longer to proceed groping our way in the darkness of empiricism, but to go at once to the root of the matter, under the conviction, that the true method of arriving at a cure for the malady is, in the *first* instance to ascertain *what are its real causes*, and *secondly* to endeavour to demonstrate its *real nature*. This once accomplished, if experience has shown any methods of treatment to be beneficial, we are thus enabled to judge on what principles these beneficial effects have been produced, and we are prepared to apply them with success,—at all events with entire safety in new cases.

In conducting this inquiry into the *Causes and Nature* of gout, we shall draw an accurate and broad distinction betwixt the mere disposition or tendency to gout, and the disease itself; between the causes which induce the gouty disposition, and those which excite the paroxysm in its peculiar and truly distressing symptoms. With this view, the following **GENERAL ARRANGEMENT** is proposed.

I. THE GOUTY DIATHESIS.

That peculiar habit or state of the body induced by the disposing causes, constituting the liability to the gouty fit under exposure to the occasional exciting causes.

II. THE GOUTY FIT OR PAROXYSM.

The disease termed gout, taking place in persons previously disposed to it (possessed of the gouty diathesis), in consequence of exposure to the exciting causes, consisting of a *constitutional* and *local disorder* essentially coexistent.

1. *The Constitutional Disorder.*

Always primary, affecting the general functions of the body, assuming various characters according to the age or

sex of the invalid, the soundness or impaired state of the different organs, the degree of the pre-existing disposition, and other peculiarities depending on the habits of living pursued and the nature of the exciting causes.

2. The Local Disorder, or Gouty Action.

Always secondary, depending on the pre-existing derangement of the functions; sometimes occurring externally in the limbs, when it usually fixes in the joints; occurring also internally, when it may affect any one tissue or texture of the body, but most usually attacking some of the important vital organs.

1. Externally: subdivided into,

- (1.) Acute fixed gout.
- (2.) Chronic and fixed gout.

(3.) Erratic or wandering gout, when the morbid action is liable to shift its seat from slight causes.

II. Internally.

(1.) Misplaced or undeveloped gout, when the local morbid action depending on the primary constitutional disorder, attacks some internal organ or part before it has appeared externally.

(2.) Retrocedent or repelled gout, when the local morbid action depending on the primary constitutional derangement, after fixing on an external part or joint, suddenly subsides there and attacks some of the internal organs. The organ or part thus attacked forms a most important ground of distinction into varieties practically viewed.

3. Secondary Constitutional Irritation.

A consequence of the local disease.

Such is the arrangement observed in the following treatise; and we now proceed with the first subject of inquiry.

THE GOUTY HABIT OR DIATHESIS.

That peculiar habit or state of the body induced by the disposing causes, and constituting the liability to a paroxysm or fit of gout, from exposure to the occasional exciting causes.

Here we shall inquire into—

1. The history of the circumstances, constitutional or extraneous, which generally attend the origin and progress of the gouty disposition.
2. Present an historical description of those symptoms by which the gouty habit of body is indicated.
3. Inquire into the true causes usually concerned in producing the tendency to gout.
4. From the facts adduced we shall draw certain pathological conclusions, tending to show what is the peculiar nature of the gouty habit of constitution—what disordered state of the functions of the body constitutes the gouty peculiarity.

HISTORY of the CIRCUMSTANCES usually attending the origin and progress of the GOUTY HABIT or TENDENCY.

The circumstances meriting attention in the history of gouty invalids are so numerous and so various, comprising not only sex, age, form, temperament of constitution, and habits of life, but also the diseases to which individuals may have been subject, and the medical treatment which pre-existing disorders may have rendered necessary, which may very justly be sometimes considered to assist in creating a gouty tendency, that it is not possible to embrace all the details peculiar to individual cases. The following general observations, however, are well established, and will be found to correspond with the state of facts.

1. It is an observation supported by the testimony of numerous and respectable medical writers, and in some degree borne out by facts, that the *children of gouty parents* are on the whole more frequently subject to this disease than others. The same holds in the case of persons descended from bilious parents, or of parents afflicted with liver complaints. Persons also, whose parents have died of apoplexy and paralysis, are particularly liable to gout.

2. The *male sex*, according to several respectable writers, are much more liable to gout than the female. This particularly applies to regular acute gout, for irregular and internal affections of a gouty nature prevail much amongst females; nor are severely acute paroxysms so rare amongst the fair sex as some people suppose.

3. Various accurate writers have observed, that the greater proportion of those who fall into the gouty habit, have been possessed originally of a *vigorous* and *athletic configuration* of body.

“They who are subject to this disease,” says Sydenham, “have large skulls, and commonly a gross habit of body, moist and lax, the best and richest foundation for life.”

“The gout,” says Cullen, “chiefly attacks men of robust and large bodies, men of large heads, and of full corpulent habits.” Scudamore notices “a capacious circular chest, large veins, and loose solids.” On the other hand, it has been admitted by all impartial observers, that the disease not unfrequently occurs in persons of a spare and slender make; as Sydenham observes, “sometimes, though seldom, it seizes thin folks.” This latter observation is plainly irreconcileable with any conclusion deduced from the former, that gout arises from plethora.

4. Gout is confessedly rare in youthful, vigorous, and healthy periods of the constitution, and is usually experienced by persons who have arrived at the *meridian* and *decline of life*. Persons, in fact, whose constitutional stamina have been injured by imprudent excesses, or impaired by diseases of various kinds, or by other causes

whose natural and necessary effect is to weaken the powers of the nervous system.

This observation is important, inasmuch as it points the attention invariably to certain palpable and assignable causes engendering the gouty habit, a correct knowledge of which is the only sure guide to the discovery of its nature and cure.

5. Among the imprudences that have been most frequently noticed by writers as creating a gouty tendency, one is *indiscreet excess in venery*. Although all who have committed such errors do not fall into the gout, yet it must be admitted, that in many instances persons who become subject to gout have been at some previous period of their life much given to indulgence in this way. Exceptions doubtless there are.

6. Another error often remarked as connected with the acquirement of gout is *indolence* and *sedentary inactivity*, habitually indulged in: *e contrario* it has been said, that few people become gouty who are employed in constant bodily labour and activity. Here too there are exceptions; for thousands of sedentary people entirely escape gout, while some very active people are seized.

7. *Gluttony*, excessive or *indiscriminate eating*, luxurious living, epicurean habits and diet too nutritious, and especially the large *use of animal food*, have been blamed for producing gout by the uniform authority of physicians, from the earliest ages till the present hour. On the other hand it is undeniable, that many persons acquire gout who have been uniformly remarkable for temperance, and even a *spare and abstemious system* of living.

Curious it is too, that not a few instances occur, in which persons accustomed to plenteous, generous, and nutritious diet, on adopting a spare and abstinent regimen, have been forthwith seized with gout. Whereas there are persons to be met with, and those not few, who after suffering the hardships and privations of penury, with a

spare, insufficient supply of food, on acquiring a fortune and adopting a better and more nutrient system of living, have become martyrs to gout.

No view of the causes and nature of the disease can be correct, which does not reconcile in a satisfactory manner these very opposite facts.

8. The *excessive* use of *vinous* and *spirituous liquors*, and habits of drunkenness, are errors, the tendency of which to produce gout has been attested by numberless writers on the disease. There can be no doubt that many gouty invalids have been much given to such intemperance; but it is also true, that thousands equally intemperate never at any time become gouty; and instances not a few occur, where this error could have no share in producing the disorder, the persons seized being sometimes remarkable for sobriety. This too is a puzzling fact to some theorists.

9. Gout has been observed to be much more prevalent in certain *classes of society* than in others. This evidently arises from the particular pursuits, pleasures, habits of diet and regimen, and various external circumstances incident to different stations in life.

Some very curious and apparently contradictory observations merit attention on this point, and open a wide field for reasoning and speculation. This we shall not at present enter into, but shall merely state prominent facts well established.

It is proverbial that the *higher ranks* of society are more generally liable. Amongst all indeed, who from affluence or independence are raised above the necessity for active exertion, and are enabled to procure the comforts and luxuries of life, and are exposed to temptations to excess; among such the gout sooner or later, in some form or another, is a pretty certain visitor. Whence, in Heberden's time, the disease was fashionable, and even now is submitted to with some portion of that complacency which Sydenham experienced in the reflection, that "kings, no-

bles, the wise, and the learned, were amongst his most frequent fellow sufferers." "It seems," says Heberden, "to be the favourite disease of the present age in England, wished for by those who have it not, and boasted of by those who fancy they have it; but very sincerely lamented by those who suffer its tyranny."

Although gout undoubtedly is more frequent amongst the affluent and higher circles, it is far from being confined to such classes. In some form or other it may be found from the palace to the cottage. Whence the far-famed distinction, the *poor gout* and the *rich*.

The gout of the humble walks most frequently assumes the irregular, anomalous, and internal forms, and is often complicated with other diseases. Genuine gout, in its decided, severe, and intractable forms, prevails chiefly amongst the higher and opulent ranks. It merits notice, that in certain circumstances of climate, for instance in the northern latitudes, the disease is almost exclusively confined to the rich. In the cyder districts of England, the poorer orders are very generally afflicted with the malady.

The servants of the rich, who enjoy in ease and repletion the advantages of wealth, and are subject in no small degree to its temptations, often become gouty. The butler and coachman are often seized, or a favourite pampered valet. Also publicans, and the drivers and guards of mails and coaches, as I am informed.

10. Amongst *literary characters* the prevalence of gout has been often remarked, particularly those who are accustomed to great mental efforts, who spend days and nights in severe study; or who add to close application full living and habits of debauchery; or those who to maintain an extraordinary mental excitement, betake themselves to wine, brandy, and such stimulating liquors, in excess.

Persons also who keep late hours, with a mind highly wrought up in excitement, either by anxiety in attending

the sick, or hilarity in fashionable and convivial parties, while they are at the same time exposed to other disordering causes, not unfrequently induce gout.

Persons also, who by profession or otherwise are continually exposed to the play of the passions, and to sudden and extreme evolutions of feeling, or to violent emotions, whether of an elevating or depressing, a pleasing or a painful character, are often observed to fall into gout. Those, for instance, who in extensive mercantile speculations are harassed by continual anxiety and distraction of mind ; or who from losses and misfortunes become the prey of chagrin, mortified ambition, and disappointment ; or such as in domestic afflictions are weighed down by the heavy hand of grief.

11. In observing the frequent coincidence betwixt mental and moral influences and the gouty habit, some caution is necessary not to mistake effects for causes. It is a fact, that those who by constitutional temperament are very susceptible of enthusiasm, excitement, and ardour in their pursuits ; who are of great warmth and intensity of feeling, and liable to considerable variations in the animal spirits, are *ceteris paribus* the most liable to acquire gout. In such susceptible people very trivial events excite the mind more than a much more striking and important incident will affect a person of callous disposition and a cooler temperament.

This unusual susceptibility of mental constitution seems to be frequent in children of bilious, nervous, or gouty parents, or of parents advanced in life.

12. The gouty diathesis or disposition is much more generally prevalent in *certain climates than in others*. This connection betwixt certain peculiarities of climate and the gout is a very interesting observation, and seems not hitherto to have attracted the attention of writers in proportion to its importance.

In certain latitudes of the globe ; in certain peculiar si-

tuations ; in *certain seasons* of the year, the gouty disposition is much more frequently met with amongst the inhabitants ; and this prevalence of the disease seems to be invariably connected with peculiar states of the *climate*.

(1.) Latitude. In northern latitudes, characterized by a very cold climate, gout is rare. In very warm tropical regions, it is also unfrequent.

(2.) Situation. Wherever the climate is dry and equable, gouty disorders are less prevalent.

On the contrary, in *subtropical* latitudes, and situations where the climate is very variable, subject to frequent, sudden, and extreme vicissitudes, from heat to cold, from cold to heat ; and especially where such a changeable climate is at the same time very moist, gouty disorders are remarkably frequent. The inhabitants of insular situations, and especially on the borders of low, damp, level districts, subject to agues, are much disposed to gouty affections.

The climate of England possesses supereminently those very peculiarities which general observation has shown most productive of gouty disorders. Accordingly in England gout abounds amongst all classes.

Take a damp, swampy, variable climate, everywhere within the greater extremes, and you find gouty disorders also abound.

(3.) The same holds in respect of the *seasons* of the year. Gouty disorders occur more universally in the wet, moist, rainy months of the year ; and their greater or less prevalence remarkably corresponds with the peculiarities of individual seasons in these respects. In the wet summer of 1824, gouty disorders were very prevalent. After continued hot weather, when autumnal cold and wet set in suddenly, many are seized. In the broken unsteady weather of spring, also with piercing easterly winds, considerable mid-day warmth, and prevailing moisture on the earth's surface,—in these circumstances, gout rages almost

universally amongst those who from other causes are at all disposed.

Whereas in mild, genial, equable weather, whether cold or hot; those who have been in the highest degree liable, will regain such freedom from their wonted attacks, as to fancy themselves quite secure. But on the return of the damp unsavourable season, their old enemy is sure to revisit them. In extremely cold frosty weather, which is generally dry, gout it is true sometimes invades; and there are some grievously tortured in the heat of midsummer; but those cases admit of a very satisfactory explanation.

Some of the most remarkable facts, shewing the coincidence betwixt the peculiarity of the climate and seasons, and the degree of liability to gouty disorders, might be adduced. They will however better illustrate the subject hereafter.

13. There are certain *diseases* and *disordered peculiarities* of constitution, which very frequently precede and attend the gouty disposition.

This observation, though seldom applied by writers to elucidate the originating cause of gout, has been often made or indirectly implied. Whence the popular remark, that gout *carries off* all other disorders. On this subject Musgrave has written at great length as a practical observer, but without arriving at any satisfactory conclusions.

What are the disorders which most usually precede the gouty state of constitution?

14. I remark, that persons liable to *inflammatory diseases*, have been frequently known under certain circumstances to acquire the gouty habit at some subsequent period: *e contrario*, not a few gouty invalids have informed me, that in earlier life they were prone to inflammatory attacks.

15. Connected with such disorders, it is curious to remark how often *blood-letting* in various ways has been

undergone by the *gouty*, previous to their falling into this state.

Whether these bleedings have been necessary or not so, moderate or excessive, judiciously or injudiciously applied, it is not always easy to decide afterwards. But that when depletion in inflammatory cases has been frequently repeated or largely used as a remedy, the gouty habit of body has shortly afterwards ensued, is a fact proved by numerous instances ; and it is too interesting to be overlooked.

16. A *chronic state* of inflammatory *congestion* in some of the important internal organs, is often found to precede the gouty state. And acute inflammatory attacks sometimes assume the *chronic form* previous to the accession of gout.

This chronic congestion is sometimes confined to one organ alone. In other cases, various organs are affected, either simultaneously or in succession, giving rise to complicated states of disease, each of which under certain circumstances ultimately terminates in gout. In this way is partly to be accounted for the extreme difficulty of demonstrating the proximate cause of the disease, which has hitherto baffled every attempt at demonstration ; perplexing the inquirer by the endless diversities in the manner in which the disorder is acquired ; no two persons falling into the gouty state precisely in the same way, or with constitutional peculiarities exactly similar ; cases being found, indeed, in which the disease occurs under circumstances the most opposite imaginable. He, therefore, who enters on the inquiry with preconceived notions as to the plethoric doctrine, or any other received theory, must meet with facts at every step of his examination into individual cases, which, if fairly viewed, at once demonstrate the fallacy of his theories, and the inconsistency of theorizing without previously acquiring an extensive and varied acquaintance with the whole facts regarding the disease.

Inquiry into the state of facts being the only basis of sound conclusions, and a necessary preliminary to every pathological investigation, in such a complex and multi-form disorder as the gout, we cannot embrace too wide a range of observation, or pursue it too minutely. We shall therefore present a detail of those organic disorders, which most frequently precede the gouty disposition.

17. One organic disorder not unfrequently found connected with the gouty tendency, is a *congestive state* of the *lungs and chest*, of an acute or chronic character.

Gouty invalids have often informed me, that in their youth they had been liable to pleuritic attacks, or pulmonary inflammation requiring bleeding. These attacks generally were found to return each winter for successive years, till they at length settled in a chronic chest complaint, attended by habitual obstruction and shortness of breath, and a constant liability to catch cold in the chest. Invalids in this state get on very comfortably in summer and warm weather, but so soon as cold or damp weather sets in, then their usual winter cough and obstructed breathing return; sometimes on particular occasions being subject to attacks of great violence.

Such chest disorders terminate in different ways. *Some*, after being afflicted for years, sometimes better sometimes worse, at length suffer what is called a breaking up of the constitution, and then dropsy ensues. *Some*, early in life, and while the constitution is on the whole vigorous, fall into consumption. Others, and those not a few, after struggling for years with a chest complaint, at length find nervous symptoms increase much upon them, and shortly thereafter acquire gout.

18. *Asthma* is a form of pulmonary disorder not unfrequently preceding or co-existing with the gouty disposition.

Musgrave relates various cases of this description, and concludes, from the facility with which asthma passes into

external gout, that the two diseases are not widely different in origin and nature. Many striking instances of the frequent connection betwixt asthma and gout, might be here detailed.

19. When inflammation or congestion of the lungs has become habitual, and at length terminated in effusion, with the usual symptoms of water in the chest, this disorder sometimes passes off in a fit of external gout: *vice versa*, when a congestive state of the lungs and the gouty habit coexist, the disappearance of gout in the extremities sometimes is succeeded by water in the chest.

Musgrave relates various examples of this kind, and others might be detailed.

20. In persons truly consumptive, or where the structure of the lungs is permanently and seriously diseased, gout seldom or never is known to take place.

When therefore in any chest complaint, a fit of external gout takes place, it is a sure indication that no organic disease as yet exists.

Some say in such cases, the gout carries off the internal disorder, and is salutary; how such a fancy could be entertained by any rational mind, it is not easy to conceive.

21. Persons who have been liable to acute inflammation of the liver, and more frequently those who are subject to chronic congestion of that organ, with what is called torpor of the liver, biliary obstructions, an excess of bile, and other irregularities of the functions of the liver, are much more disposed than any other diseased habits to fall into gout: *e contrario*, gouty invalids have almost invariably at some time or another previously been subject to disordered liver and bile: all medical observers agree in this. Biliary derangements, in fact, so frequently coexist with gout, as to give rise to the popular belief, that an attack of gout, and of bile, are much the same thing; a conception which, although vague and unsatisfactory to the pathologist, is still interesting in a practical view.

Persons, who have resided long in the East or West Indies, or other warm climates, and come to this country with enervated frame and obstructed liver, are often seized with gout, as might be shown by many examples.

22. Dyspepsia, or disordered digestion, in some form, invariably precedes the gouty habit.

Persons afflicted with indigestion, arising from a diseased liver, are more peculiarly prone.

There is an indigestion connected with a congestive state of the gastric vessels, amounting to a chronic inflammatory state of the stomach, which is of very frequent occurrence previous to the gout.

This congestive state of the stomach is generally indicated by pain and oppression after eating, a sense of fulness and tightness, considerable tenderness at the pit of the stomach when pressed upon. The invalid in this state is feverish, depressed in spirits, and nervous; and the disorder sometimes extends to the contiguous organs, involving the liver, the kidneys, or the lungs. These disordered states, in process of time, become connected with a determination of blood to the head, giddiness, swimming, sense of weight, numbness, and confusion in the head.

By and by, when the gouty diathesis is more completely established, the more distressing symptoms of indigestion are much relieved, *i. e.* sensations of uneasiness at the stomach are much less felt in the organ itself, although real weakness of its digestive power continues; and the effects of any error in diet, although not discernible in that organ, appear in other parts of the system in the form of gouty affections.

Hence, gout has from the earliest times been referred to the stomach, and the uniform coincidence betwixt dyspepsia and gout has been a subject of universal observation.

23. Acute inflammation of the bowels has on occasion preceded the gout; more frequently a congestive state,

with chronic inflammation of some part of the alimentary canal, is found to have pre-existed in those who become gouty.

Of all parts of the canal, perhaps, the duodenum is the most frequently so affected; this morbid state of the duodenum is generally connected with a similar condition of the stomach, or of the hepatic system. It is often mistaken for liver disease, when the liver is scarcely deranged at all. There is a sense of fulness, tightness, oppression, and sometimes uneasy pain experienced in the part; the invalid feeling blown out and distended after eating.

The ascending arch of the colon often is subject to this chronic inflammatory congestion; and shortly before the gouty state supervenes, the rectum becomes involved so as to occasion piles.

In some cases the iliac viscera are affected, the bowels around the navel are contracted together in lumps, feeling heavy and pendulous in the corpulent; and sometimes very uneasy tenderness on pressure is felt in the abdomen. The functions of the bowels in this state are always irregular.

These congestive states of certain parts of the bowels may sometimes be referred to a primary obstruction of the liver, which, by impeding free circulation by the venæ portarum, induces a venous congestion in the viscera which supply the various branches of the porta. At other times, the local visceral congestion is the result of causes, affecting the general distribution of the circulation, repelling it in excess upon the bowels. Whatever causes tend to disorder the functions of the stomach and alimentary canal greatly increase the evil.

Our chief object here is merely observation of the fact, and in this we are corroborated by the testimony of Drs. Parry and Scudamore.

24. Morbid affections of the kidneys, sometimes resembling acute inflammation, at other times an apparent sup-

puration of these organs, with thick purulent or bloody urine; attacks also of severe lumbago across the loins, not unfrequently precede gout; also painful affections resembling gravel in the urinary passages, or stone, or inflammation of the bladder, are frequently met with in the gouty, especially those advanced in life. Obstructions similar to strictures in the urethra, with great pain and difficulty in making urine, are common in such persons.

25. It is an interesting observation, that one of the most frequent and invariable forms of disordered circulation, to which the gouty are subject, is a determination of blood to the head.

In persons whose constitutional energies have been much impaired, this takes place sometimes in a very direct and unexpected manner; but determination to the head much more frequently ensues as a consequence of the previous disordered states of the circulation just noticed. Persons liable to pulmonary disorders, to obstructed liver, to dyspeptic stomach, and a congestive obstructed state of the bowels, have all on occasions shown a peculiar tendency to the farther complication of determination to the head previous to the accession of gout.

“It is well known,” says Dr. Parry, “that the diseases which more especially precede gouty paroxysms, or occur in their intervals, are those of the alimentary canal and head.” And he endeavours farther to show, that all those symptoms usually attending gout, and styled nervous, “proceed mainly from a determination of blood to the alimentary canal and head.”

While we coincide with Dr. Parry, in the observation of the fact as here stated, we can see no grounds for banishing the nervous system from all pathological inquiries, as that author has done. However difficult it may be to separate the functions of the vascular system from those of the nervous, which no one can ever expect to do with any success, there still remains a most important

class of disordering causes, which produce their effects on the body chiefly, if not solely, through the medium of the nervous functions; and the particular states of the nervous system, and the laws regulating its functions, must always constitute an important branch of pathological inquiry. In tracing gout to its remote causes, the condition of the nervous system demands a peculiarly close attention.

Many if not all of the causes of gout, produce their effects chiefly through the medium of the nervous system. In viewing determination of blood to the head as one of the principal and invariable of the causes, which induce gout by disordering the nervous system, we may be near the truth; but it is not the only originating cause of this malady, numerous others might be referred to as lending their influence.

26. When an habitual determination of blood to the head has taken place, whether directly from enervating causes, or as a consequence of inflammatory congestion of some of the vital organs, the lungs, stomach, liver, or alimentary canal, of each of which in given circumstances it may be regarded as the natural result, gout is not always the immediate consequence; the disorders arising from determination to the head are various, according to difference of circumstances, sometimes ending in gout and sometimes not.

27. Of these disorders, apoplectic shocks or strokes, of a more or less serious character, are of not unusual occurrence. In instances not a few, severe gout has taken place in the process of recovery from apoplexy. Gouty invalids are sometimes very subject to slight fits in the night, resembling apoplexy, for some time previous to the gout appearing.

28. Paralytic shocks of a transient nature, and of partial extent, are also at times observed to precede gout: of this description a variety of cases might be detailed.

29. Persons afflicted with rheumatism in its various

forms, are very liable to fall into gout. This is particularly the case in lumbago and sciatica, which are oftener than other rheumatic affections connected with a gouty habit, and indeed have been regarded as only different forms of that disorder; whence sciatica is termed hip-gout; whence also the common phrase rheumatic gout. Musgrave particularly adverts to arthritic disorders ensuing upon rheumatic; and the near alliance betwixt the two disorders has created no small difficulty in drawing the line of distinction; the one disorder passing into the other on the most trivial change of circumstances, and both disorders being found to prevail with remarkable uniformity, in similar constitutions, latitudes, climates, and seasons of the year.

30. Tic douloureux sometimes terminates in gout, and indeed occurs chiefly in persons possessed of all the peculiarities of the gouty habit.

In like manner, tooth-ach, ear-ach, with severe pain and deafness, either with or without a discharge from the ears, is sometimes found in gouty habits.

The same may be said of various other painful affections of the nerves.

31. Piles are of frequent occurrence, previous to the supervention of gout.

32. Among the less decided forms of disordered constitution, which are liable to acquire the gouty diathesis, may be noticed especially the nervous dyspeptic; also hypochondriacal and hysterical invalids.

Indeed, whatever may have been the previous character of disease, to which the constitution has been disposed, few there are who do not become remarkably *nervous* previous to falling into gout; this word nervous is doubtless a very vague one and embraces a wide catalogue of complaints. V. infra.

I do not recollect many cases of gout, in which the sufferer had not at one time or another previously been

pronounced *hipped*. Medical as well as non-medical advisers have alike been foiled in their endeavours to restore the frame to health; and finding their patient still disordered, depressed in spirits, and despondent, in spite of every remedy ingenuity could devise, they have resorted to *hypochondria* as their last shift—a most convenient cloak, doubtless, to cover their want of success, and an excellent reason for relinquishing a persevering and rational inquiry into the facts of the case. Invalids, who can be satisfied with the shadow of a name, instead of solid information as to the origin of their malady, sit down in gloomy resignation with this dark, undefined, and undefinable “hypochondria and nervousness,” brooding over their beclouded imagination; till, on some fortunate coincidence, the gout makes its appearance, and clears up the mystery. It is merely the exchange of horror and despondency for torture beyond endurance, which the physician, then assuming a sagacious look, pronounces to be a most desirable crisis—*a salutary effort of nature!*

Such is a very general view of the circumstances meriting notice in the history of those who acquire the gouty state of constitution.

We shall now enter more particularly into details, by presenting a description of the symptoms which characterize the gouty habit in its origin and progress.

A HISTORICAL DESCRIPTION of the SYMPTOMS by which the GOUTY HABIT is characterized.

The origin of the gouty disposition is usually slow and gradual, and sometimes imperceptible to the individual himself. The symptoms by which its advance is indicated vary considerably in individual cases. This is only what might be expected from the variety of circumstances just detailed, under which this habit is acquired. And not only

are the external circumstances various and dissimilar, but constitutional peculiarities of the most diverse nature, occasionally terminate in gout, under exposure to certain causes or combination of causes.

One man is powerfully muscular; another feeble and slender: one is corpulent and unwieldy; another spare and agile: one is a perfect specimen of conviviality, given to every luxury and excess; another a pattern of sobriety, temperance, or starvation: one is of habits unceasingly active while he has the power of motion; another is by necessity, or profession, or pure laziness, addicted to indolent inactivity: one is of a sanguine, energetic temperament; another nervous and irritable; a third phlegmatic; a fourth melancholic: one is full, florid, and plethoric; another pale, sallow, papery, has been subjected to bleedings and cuppings without end, till he has perhaps lost and renewed every particle of red blood in his body. We have one habitually dyspeptic for years, another continually bilious, a third naturally, *i. e.* constantly costive, another quite the reverse. One has been subject to acute inflammations, others to long-continued organic affections, while some few have never known what disease of any kind was, but have been accustomed to laugh at physicians, and to enjoy with seeming impunity every luxury and indulgence that might fall in their way.—Yet one and all of these, somehow or other, find themselves at some period in their passage through life arrested by this unwelcome malady.

Seeing the circumstances and constitutions of the gouty are so diversified and so opposite, and that the causes producing the diathesis are so various in kind, degree, and combination of influence, it is plain that no description, however minute, could be found to embrace the symptoms peculiar to every case. The following general view, however, will it is hoped appear sufficiently correct and comprehensive for practical purposes; and although no one person exemplifies the whole catalogue, yet it is believed

there are few gouty invalids, who will not recognize in their own experience many of the symptoms detailed.

1. A failure of the corporeal and muscular vigour generally precedes the tendency to gout.

Whatever may have been the original strength and compactness of the frame (see obs. 3), we find a remarkable change has taken place when the constitution has been so deeply impaired by those excesses and disordering causes which have induced the gouty habit.

The muscles of the limbs, and indeed of the whole body, become loose and relaxed, and are sometimes considerably diminished in size. There is always a degree of muscular weakness, and incapacity for severe or continued exercise without great lassitude, irritability, weariness, and a sense afterwards of dull, gnawing pain. Some indeed feel as if bruised all over for some days after any exertions, especially in cold or damp weather, with rheumatic stiffness and aching which prevent rest.

From the relaxed state of the abdominal muscles, the whole belly feels unnaturally soft, flabby, and enlarged, and in the corpulent becomes loose and pendulous. Ruptures are not unusual in this state. In this relaxation the muscular coats of the bowels seem to partake, so that the alimentary canal is often greatly distended and swollen out with flatulency, with rolling noises and twisting movements within; whence the “puffing up with wind” of Sydenham, and the “abdominal corpulency” of Scudamore, a corpulence doubtless sometimes real, but more frequently only apparent and occasional. One female is subject to this distension so much previous to the access of gouty symptoms, that she is almost as large as in the last stage of pregnancy; yet within a few days she is reduced to the natural size, not by abstinence and depletion to reduce corpulency, but by means which rectify that morbid state of the alimentary viscera on which this flatulence and relaxation depend.

Fulness and enlargement of the abdomen is by no means necessarily attendant on the gouty state ; for sometimes the belly is so small in certain enervated, emaciated invalids, that you can feel the aortal pulsations almost under your finger, the abdominal parietes lying close on the spine, as happened lately in a young man, who had lain a month in bed in excruciating tortures before I saw him, and who was never accustomed to full living, who was spare, pallid, and the very reverse of plethoric (*uxore sterile permasculâ*), and he had been on low diet for weeks. This case was put under medical regimen, and ordered animal food thrice daily with wine, and in a week or two he was walking about entirely free from gout. How absurd then to tell us that gout proceeds from plethora !

2. The power of locomotion is much impaired.

In intervals of the fits, the gouty sometimes retain in some degree that pedestrian power for which they were distinguished in their earlier and sounder days ; and it is a curious fact, that many gouty invalids have been in youth very athletic, and fond of feats indicating strength.

This is no longer the case when the gouty tendency exists in a great degree : then weariness, stiffness, and tenderness of the limbs, ankle joints, and feet, soon arrest their progress. There is also such a weight, weakness, and pain in the loins felt, as often prevents them walking any distance ; also a sense of numbness and languor in the thighs and lower extremities, which causes them to drag their limbs heavily along, and from aversion to active exercise they naturally seek to lounge in inactivity.

It is remarkable that this languid, inert disposition prevails most in the early part of the day, till the afternoon, when it sometimes passes off, and a degree of lightness and elasticity is felt, which renders exercise no longer a disagreeable toil, but a pleasure.

It is curious, however, in this respect, how much depends on the state of the stomach. When the stomach is

empty from long fasting, which the gouty constitution can very ill bear without much sense of sinking, depression, and debility, the power of walking particularly fails; and if in this state exercise is persevered in, it produces much general languor and feverish irritability, with burning, stinging, aching pains in the feet and toes; then corns or bunions gnaw with torture, especially if the shoes are new, or stiff, or tight; and if the path is at all rough or gravelly, the invalid is so lame as to limp along almost as much as if in actual gout. In this tender state of the feet the invalid cannot venture to use new shoes, which he feels to "draw the feet," as it is termed, and create great uneasiness. When this painful weakness of the feet is increased by fasting and low living, which it often is, it is remarkable that after a full, strengthening meal, the feet are completely restored, and exercise may be then taken with ease and comfort. If, however, after long abstinence, the stomach is overloaded with a heavy dinner, especially when it has been out of order before, and the food is indigestible, then the feet and limbs will feel more than usually sluggish in most podagrics. This sluggish torpor of the limbs after dinner is sometimes at once relieved by a few glasses of wine, whereas in other cases this indulgence will immediately bring down the gout in regular form. This is the more likely to happen if an active walk be attempted immediately after dinner and wine.

Other circumstances merit notice. In very warm, or in wet, damp weather, the feet are particularly subject to tenderness and aching. Some I have known who can with considerable certainty predict a change to wet weather some hours before by increased tenderness of the feet, or the unusual galling of corns.

There is a languor and torpor of the lower limbs, noticed by Sydenhám, Parry, Brown, &c. as frequently occurring in gouty constitutions previous to the access of the disease.

This languor is almost sure to follow in more or less degree a few hours after getting wet feet, or being exposed to wet clothes from rain.

It is always wrong to take violent exercise under these circumstances, as it has often brought on severe gout.

3. The general form and figure are altered.

The chest and shoulders of the gouty no longer retain their square athletic configuration. Instead of the erect, compact attitude of health, it will generally be apparent that the muscular system all over has lost its tone, and the joints seem weak and unhinged. The easy spring of the gait is gone, and the whole actions and movements are less firm, steady, and energetic. The hand trembles, and the knees and ankles seem to fail under the weight of the body.

In the relaxation of the frame the cellular texture remarkably partakes, so that there is the appearance of corpulence and fulness of habit when the muscular substance is wasted, and the whole vascular system deficient in that plenitude of blood which is necessary to animal vigour, the cellular substance being surcharged with redundant and useless fluid. Hence the "looseness of the solids," so often noticed by Sydenham and other authors, some of whom have supposed plethora to exist, when in fact there is that cold, leuco-phlegmatic habit, which absolutely requires solid nutriment, stimulants, and cordials, to maintain the weakened powers.

4. Another indication of approaching gout is a more than usual tenderness and delicacy of constitution, and a greater susceptibility to be injured by the disposing causes of the disease.

This delicacy of constitution gradually increases more and more, so that the invalid, whatever he may have been in former times of health and vigour, now feels himself, earlier than is natural to his age, sensible of growing

infirmities. In fact, a "premature old age," as Sydenham terms it, comes on, in direct proportion to the expenditure of the constitutional strength, by those imprudent excesses in which he has indulged; and before the full extent of the mischief is known, it is generally too late to prevent the consequences.

The constitution thus impaired becomes more and more susceptible to climate and weather; especially feeling the effects of cold, of wet rainy weather, and of sudden changes; also of easterly winds, of evening air, and the access of winter. He finds it necessary to be more attentive than formerly to his dress, which he must carefully adapt to the weather. Indeed he is continually subject to colds and rheumatic affections on the slightest exposure.

The approach of November, and the wet and cold of winter, brings along with it the certainty of some serious attack of illness, which on each returning year requires more care and confinement to restore. The severity of the winters, and the moisture and changeableness of an English climate, are now a constant source of anxiety, the never-ceasing theme of complaint: add to this the necessity of remaining within doors in unfavourable weather, in which case he suffers greatly from want of exercise, especially if in a close tainted atmosphere; becoming languid, nervous, irritable, flatulent, dyspeptic, melancholy, sleepless, and despondent. He is much more easily fatigued than he ever before recollects, whether by corporeal exertions, or even mental efforts, which are a severe exhausting drudgery, and he naturally prefers the lightest and most frivolous amusements. Wakefulness, or late hours in company, or otherwise, soon show their effects on his countenance, in the pale, haggard, worn-out aspect, and especially if attended with too much wine; hard study, close reading, or precise calculations, produce much confusion of mind, languor, and irritability; in fact he is hardly capable of fixing his attention. Unusual abstinence

or excess are alike hurtful. Confinement of the bowels, or flatulence, and in fact the slightest derangements of the digestive functions, are attended with much annoyance.

He has of late become so delicate, that if he changes his bed, or shifts his flannels, or gets damp feet, or is exposed out of doors in wet, chill weather, or in easterly winds; or if he has dined out, and taken a glass too much, or has not been very circumspect in what he eats, he is sure to suffer a degree of inconvenience to which he was in former periods a stranger. He tosses half the night in sleepless anxiety and disquietude, and dismal dreams, pregnant with confusion and horror, infest his broken slumbers. In short, a thousand undefinable sources of continual and serious inconvenience now attract his attention, which he never discovered before; and if, regardless or unaware of their hurtful influence, he continues exposed to it, a long train of new and uneasy symptoms prey upon his comfort. No wonder that he is depressed and despondent. Those who have had any of the important organs habitually disordered, are subject to attacks of serious disease. Besides mere tenderness and delicacy, characteristic of an impaired, enervated habit, therefore, we find the various functions of the body invariably more or less disordered previously to the access of gout. These disordered conditions we now notice.

5. The circulation is always weak and easily disturbed in persons disposed to gout.

The uniformity of a disordered circulation in the gouty, both general and local, has been remarked by all accurate writers and observers, insomuch as to give rise to the common opinions, that gout occurs chiefly in persons of the sanguineous temperament; that gout depends on plethora; that gout is an inflammation; and more recently to Parry's view, that a disordered circulation is at the root of every morbid symptom incident to gouty invalids. Without embarrassing ourselves at present with the in-

quiry, whether the nervous or the circulating functions have the most to do with the production of gout, and whether of the two derangements precede and give occasion to the other, it is sufficient here to give a summary view of the leading facts respecting the circulation in gouty constitutions.

Deviations from the healthy state of the circulation, a very prominent feature in those who manifest an increasing liability to gout, comprise both *irregular distribution* of the circulating fluid, and *irregularity* in the circulating *actions*.

When inflammatory attacks (see obs. 14) have preceded the gouty state we generally find, that such attacks have shown a tendency to frequent relapses, perhaps for years; at length assuming the form of chronic congestion in the organ more particularly affected: and this tendency to chronic congestion, from being at first confined to one organ, at length extends to others. When the inflammatory tendency becomes connected with general enervation of the habit from other causes, then this tendency to misdirection of the circulation is much increased, insomuch that the slightest exposures to partial and transient cold, or wet, will determine the blood in excess to the internal organ most weakened; and thus occasion a degree of oppression and disturbance of the functions of life. Much more does this effect ensue, when from the degree of exposure the sensibility and actions of the body are so affected as to constitute a general collapse. In this case the whole circulating activity is repressed, and the blood is repelled from the extreme and external vessels, and determined in unusual excess upon the internal parts. The indications are, languid circulation, slow, compressed, and often irregular pulse, deficient heat, paleness, sense of chilliness or shivering, with numbness and torpor of the hands and feet, which appear deserted of blood: there is also an internal sense of sinking,

depression of spirits, and obstruction of the various functions.

When the body is in this collapsed state, it is peculiarly disposed to a reaction on exposure to warmth or stimulation. During this reaction, a set of quite opposite symptoms arises, the vascular activity is re-excited; the heat, the sensibility, and the circulation return to the extremities, the pulse becomes full, heaving, and tensive; the organ more particularly congested is the seat of considerable uneasiness and functional disturbance. This organ may be the liver, stomach, lungs, head, &c. &c., and peculiar symptoms ensue accordingly. In the enervated state of the habit there does not ensue that acute inflammatory action which characterized former attacks, when the constitution was more vigorous; but we have what may be termed an inflammatory congestion of some organ, coupled with a reactive febrile excitement. In very debilitated habits this disordered state assumes the character of a daily remittent fever, to which Heberden long ago remarked the gouty to be very subject, and which is often met with in practice, creating hypochondriac days and sleepless nights, spasms, loss of appetite, indigestion, and a whole train of other evils; and this especially in winter, and wet weather, &c.

In aguish districts the same series of symptoms approximates to ague, in more or less perfect paroxysms; and numerous examples of this nature might be detailed, where aguish symptoms succeeding dyspepsia, or liver complaints in nervous invalids, usher in gout.

It is in such weakened habits that we often find that enlargement of the veins in the hands and feet, so often noticed by authors on gout; the veins on the finger joints and other places being much larger, and more distended than natural. This dilatation of the veins has simply enough been considered a proof of plethora, whereas it is obviously varicose, arising from the general relaxation of the habit: it is common in fenny, agnish tracts.

We invariably find, that in proportion as the body is weakened, and increases in nervous irritability, so does the circulation become weakened and irregular, and subject to the collapse and reaction, and to partial local congestions as above described, from slight causes; whence sudden flushings of the face, confusion of mind, drowsiness, giddiness, sudden rushings of blood to the head, on any excitement corporeal or mental. The man cannot stoop, or laugh, or get angry, or take a few glasses of wine, without annoyance at the head, almost amounting to stupor; and this tendency to local determination of blood goes on increasing with the general irritability of the frame, till at length it obeys the slightest impulse or attracting cause: the most frequent and most alarming direction of the blood is towards the head, causing sudden swimming, giddiness, drowsy oppression, and often fits.

A tendency to local irritability of the arterial system is another curious feature in gouty constitutions; hence sudden palpitations of the heart will be felt, which continue a short time, and all at once subside; also throbbing in the temples, or beating, shooting sensations within the head are experienced, pulsation at the pit of the stomach, and partial throbings in various parts of the body, are familiar to gouty invalids. These throbings are particularly annoying in the temples, ears, and head at night, as the head is reclining on the pillow, and is composed for sleep.

“ I remember” (says Dr. Baillie) “ one case in which palpitation of the heart had taken place, and continued for months in consequence of gout having attacked that organ. The palpitation ceased suddenly and entirely, when the gout attacked one of the feet in a full and decided form.” Instances similar are occasionally met with. In various cases also, before any decided fit of gout has taken place, the individual in the progressive tendency to the disease is particularly annoyed by palpitations. These palpitations usually occur after being severely chilled by cold or wet,

when a glow of heat and reaction commence, as for instance, sitting near the fire after having been wet, or while warming in bed. There is sometimes a degree of tightness and obstruction felt at the heart, which keeps up the palpitation for hours or days together, and then it suddenly yields, sometimes with a deep sigh as if something gave way within, sometimes a spasmodyc effort or fit takes place at the moment it yields, at other times a sudden rushing of blood to the head, just while dropping over asleep. On other occasions palpitations will pass off in the form of gout in the extremities, or are succeeded by wandering rheumatic pains. Fits of spasmodyc palpitation are sometimes so frequent and severe as to be mistaken for angina pectoris.

A variety of causes occasion palpitations in gouty habits: exposures to the weather, agitation of mind, particular states of the stomach, obstructions of the liver, and the state of the bowels, all these exert a remarkable influence in disturbing the circulation in such constitutions. Unusual quietude and languor of the heart's action, generally precedes palpitation.

A local irritability of the arterial actions is therefore a frequent feature of the gouty habit, sometimes attended with determination of blood in excess to the part, sometimes merely an increase of activity in the vessels.

It may be useful to give here a summary view of the most prominent peculiarities of disturbed circulation in gouty habits.

(1.) We have all the marks of a general deficiency in the energy of the circulation, which is remarkably influenced by causes which abstract heat and stimulation, and thereby occasion collapse: this collapse always succeeded by a tendency to reaction, partly as a law of the constitutional functions, and partly the result of external causes of heat or stimulation.

(2.) We recognize a remarkable tendency to a disor-

dered distribution of the blood, in which by slight causes it is directed in excess to particular parts; this especially appearing in the state of collapse, in which case the blood recedes in over-proportion on the internal parts, always falling in excess on some organ; appearing also in reaction, in which the balance of the circulation is in some measure restored. But a morbid action, of a more or less acute character, is excited in the organ more particularly congested and obstructed, creating many irregular functional disturbances.

(3.) The defective circulating energy is particularly manifested in the venous system, which is subject to relaxation and distension, especially in the extremities, where large blue veins are very prominent.

(4.) We recognize a peculiar tendency to arterial excitement, entirely local and limited, sometimes consisting of local arterial throbbing or pulsation, at other times of an arterial impetus determined suddenly to some part, especially the head. This afflux of blood to a part is sometimes as transient as it is sudden; at times it leaves the organ or part more or less in a state of congestion, sometimes not.

6. *The complexion characteristic of the gouty state.*

In this respect considerable variety is met with.

A pale sallow aspect is not unusual, with scarce a tint of blood, the skin appearing dry and pasty. This is especially the case with those who fall into gout after internal inflammations, and who are subject to excessive determination of blood to some of the internal organs: the skin seems entirely deserted of blood, deficient in nervous energy, torpid, and inactive. Persons who have been much bled, or exhausted by Cytherean imprudences, often exhibit this complexion when advanced in years.

Even in younger people, however, the same is met with. An observation of Dr. Baillie is not inapplicable to some gouty constitutions. "In some cases the stomach

will lose almost entirely the power of digestion, the patients will become pale and emaciated, and appear as if affected with some fatal visceral disease; at the same time no morbid structure in the region of the stomach or liver can be detected." Not a few of this very class of invalids have met my observation, who with a pale emaciated aspect, to all appearance the most remote from plethoric, have acquired the gout. The tendency to inflammation in youth, and in later periods of life to apoplexy and paralysis, is not unfrequently connected with this papery, exanimate hue of complexion. Such cases are deceptive; and the hasty observer, who judges from his own preconceived notions, is apt to smile ridicule on the idea of gout occurring in such a habit; yet some such become gouty early in life.

It is curious with what frequency old gouty invalids, who have been much dosed with colchicum, present this white papery complexion.

The majority of the gouty, it must be admitted, are florid in colour, especially those who have uniformly maintained high health in youth and manhood, and have brought on this malady by excess and free living. Here the full, florid, bloated aspect is proverbially expressive of apoplexy and gout; there is often also a livid hue of countenance in such, especially in cold weather, the relaxed cutaneous vessels appearing to be filled with stagnated venous blood.

The chief feature of complexion meriting notice in the gouty is its *changeableness*. Sudden changes of complexion arise from the slightest causes: alternate pallor and flushing of the countenance is thus habitual; excitement of mind, stooping, laughing, straining, impassioned speaking, or other exertions, also anger, and some other passions or emotions, produce such sudden determination of blood to the head and countenance, as to create great uneasiness. Under certain other emotions of mind, as also on

exposure to the weather, and in disordered states of the stomach, a peculiar wan and bloodless hue is induced.

In impaired enervated constitutions, this changeable character of countenance is a most marked peculiarity, and you can judge tolerably well of the condition of the nervous and circulating energy, by the effects of exposure to cold air, &c., in altering the complexion. The state of the stomach and biliary system also affects the complexion in the most direct manner. After a fit of indigestion, or after eating unsuitable diet, which creates little or no inconvenience at stomach, the countenance will continue pale, the eyes haggard, and the look lurid, or of a bilious cast, for days or weeks together.

7. The state of the skin.

The skin sympathizes so directly with the state of the stomach, alimentary canal, liver, and the other internal organs, that much is at all times to be learned of the general health and energy of the frame from close observation of the surface.

In all gouty habits, and in general in proportion to the degree of the diathesis, the skin on careful inspection will be found to give a cold pasty feel to the hand, and is apparently deficient both of nervous and circulating energy. Sometimes it is dry, rough, and thick (whence Cullen's thicker rete mucosum, as a characteristic of gouty constitutions): in other cases, however, it is soft and smooth; but it invariably possesses that coldness and torpor, characteristic of nervous atony and imperfect circulation. This coldness to the feel exists even in summer, and while the invalid is burned up with heat, in his own sensations.

It is remarkable, also, how much in gouty constitutions chilliness and torpor of the skin are increased by crudities at stomach, by errors in diet, or when the bowels are costive for a day or two. Then the whole surface is chilly,

and the feet cold and lifeless to the sensation. (See perspiration, &c. &c.)

8. *Functional disturbances*, arising from disordered distribution of the blood, in gouty cases.

Having noticed that tendency to organic congestion, which gouty habits exemplify, the consequence for the most part of pre-existing inflammatory attacks, or of more habitual organic disorders, always in connection with a subsequent enervation of the habit, whereby the circulating energy is impaired and its equable distribution liable to be disturbed by slight causes, it may now be satisfactory to notice those functional derangements of particular organs, which arise from the congestive state to which they are liable.

These organic congestions are sometimes slight and transient, sometimes more severe and habitual, and the functional disturbances to which they give rise, are the true secret of much of that loss of health, vigour, and comfort, for which the gouty are so remarkable.

9. Pulmonary congestion.

The invalid so affected is subject to habitual cough, and is very prone to catch cold in the chest. There is some tightness and oppression in breathing, a sense of fulness and dull pain on deep inspiration, also a wheezing or purring noise in breathing, and more or less expectoration of phlegm or blue jelly-like mucus.

These symptoms of chest complaint, especially the cough and the breathing, are much increased by exposures to wet or cold, or in cold easterly winds. In the summer season the cough is generally relieved, but it is sure to return again on the access of winter, and year after year becomes more fixed. He at length becomes a confirmed asthmatic.

It is curious, that when a person with this habitual cough and expectoration becomes possessed of the gouty

diathesis, if the gout fixes in the extremities, the cough and breathing are instantly relieved ; and when the gout leaves the extremities, the breathing and cough become worse : of this many instances might be quoted.

A variety of other complaints of the chest are found in connection with the gouty state.

One invalid is on every exposure to wet or cold, subject to acute pain in the chest, like a dagger fixed through the breast bone. He was once subject to inflammatory attacks : now he is gouty.

Another has been afflicted with this distressing pain in the chest for years, almost without intermission ; and the only relief is when occasionally a gouty affection seizes the toe joint.

Another aged invalid is similarly affected with severe fixed pain in the chest and dyspnœa ; and on occasions, gout seizes the instep, and then the chest is restored as if by a charm.

A lady who has been severely bled for acute inflammations of the lungs, is subject to occasional attacks of severe pain opposite the heart, and sometimes faints under its severity. It most usually passes off in *external gout*.

A sense of tightness and constriction like a string girt across the chest, above the stomach, is often felt by gouty invalids whose chest is weak.

10. Hepatic congestion.

Congestion and obstruction of the liver, a case so common with gouty invalids, gives rise to symptoms meriting particular notice.

Tenderness on pressure at the pit of the stomach, and the right short ribs, with a sense of weight, tension, and sometimes dull pain there, are the usual indications locally.

The biliary secretion is at the same time liable to great irregularities.

Sometimes the liver, in a state of obstruction, continues

habitually torpid and inactive, with deficient bile, indigestion, costiveness, low spirits, pale dry countenance, and unaccountable depression and uneasiness.

Excess of bile, however, is much more common in the gouty, while the liver is obstructed and overloaded with circulation, feeling tender and uneasy on pressure.

The duodenum and bile ducts are affected with spasmodic torpor; the bile accumulates in large quantity, and becomes highly acrid and irritating. Then we have nausea, sometimes fits of vomiting, spasms, flatulence, costiveness; oppression, drowsiness, and swimming in the head; confusion, giddiness, shooting pains, startings in sleep; with a whole group of nervous and hypochondriacal symptoms. These states of hepatic obstruction, in vigorous periods, were only a bilious attack or sick headache, perhaps passing off in a spontaneous purging; but as the nervous system becomes impaired, and the gouty peculiarity is acquired, the same hepatic obstruction, as a primary evil, extends its consequences over the whole functions and energies of the frame. In such circumstances, it is not only the source of dyspeptic symptoms, but also of determinations of blood to the head, of irregular action of the heart and arterial circulation, and of a torpid, inert state of the general nervous sensibility. Whence languid circulation, cold feet, dry chilly skin, numbness, &c. Besides this, to hepatic obstruction involving the alimentary canal in deranged functional actions, we may trace various indirect consequences in the shape of morbid sympathies, as will be afterwards explained.

This hepatic obstruction, in more or less degree, is always found to exist at the time *gout invades*.

It is therefore of the greatest consequence to ascertain when, and in what degree, it exists; because if overlooked all curative means are applied erroneously, or at least ineffectually.

It often exists to a great degree in gouty invalids, where

none of the usual indications of bile are observable. Whence the hasty observer is apt to be misled in his judgment.

The dry sallow complexion, the coated tongue, the bilious eye, are indications not to be mistaken. But without any of these external symptoms, when the skin seems natural, the eye pure and white, the tongue moist and clean, you may detect an insidious state of hepatic obstruction, by tenderness at stomach on pressure; by a tight blown-out flatulent state of bowels; by a kind of drag and weight from the hepatic region affecting the breathing; by an uneasiness in lying on the left side; by palpitations, giddiness, and wandering pains in the limbs; or by a tendency to cramps and spasms in various parts.

11. Indigestion and disordered stomach is a never-failing characteristic.

The invariable and most prominent seat of functional disturbance in gouty invalids is the digestive organs.

Whatever be the peculiarity of individual cases, all observers coincide in this, that depraved digestion is of uniform occurrence, both previous to and after the acquirement of the gouty diathesis.

As dyspepsia or indigestion is a very general term, and occurs in all varieties of constitution, and in thousands to whom gout is unknown; we shall describe the symptoms of disordered digestion which are peculiarly prominent in the gouty.

(1.) The appetite. Some gouty invalids have a very spare and defective appetite, and feel much uneasy weight, distension, and oppression at stomach, if they force an appetite.

More usually however the appetite is good, and even voracious; gouty people being proverbially great eaters. This arises more from a sense of emptiness or sinking at stomach than keen hunger; and if we were to judge by

the quantity eat, the stomach must be more than usually capacious.

This proneness to habitual excess in eating has been so frequently observed, as to give rise to the prevailing notion that the disorder proceeds from full living; an inference plainly illogical. Undoubtedly few gouty invalids are met with who have not felt unaccountable and inordinate fits of craving for a day or two, in which the appetite can hardly be satisfied. These fits of inordinate eating are generally coincident with those periodical biliary accumulations so common in gouty constitutions; and are also frequent in bilious persons, not gouty, who are liable at times to over-eat themselves, and induce sick headache and surfeit. In both cases there is a predilection for fatty and butyraceous substances, and rich meats; and if this is indulged, then nausea, and perhaps vomiting or purging ensue; or costiveness with much oppression at the head; and sometimes all this disturbance so occasioned ends in gout. Whence the popular remark, that gout arises from a surfeit to repletion; that gout and bile are nearly allied, &c. It is in such cases, the indigestible quality more than the mere quantity of food eat that does the mischief; and a good deal is to be attributed to the *circumstances in which it is taken.*

(2.) Flatulence is one of the most troublesome symptoms of the gouty state of stomach, often attended with coldness in the stomach, spasm there, rolling noises in the bowels, fulness and distension as if blown out, and other uncomfortable sensations which prevent sleep.

Flatulence may be traced to some error in diet, and is especially troublesome when the liver and bile are obstructed. Exposure to cold, or wet feet, will produce much flatulence; also confinement within doors in close apartments, and any agitation of mind.

There is often a feeling like a hysterical ball of wind

pent up in the stomach or bowels, which moves along the alimentary canal ; sometimes felt in the throat, causing a sense of fulness and choking ; sometimes in the stomach, when hiccup is produced, and a tendency to eructate without the power of doing so freely, whence a spasmodic feeling at stomach. At other times, the same sensation fixes in the duodenum, with uneasy tension at the liver, and obstruction of the bile ; and when it appears at the rectum, there is tenesmus and a straining at stool, without the power of free evacuation. This is a very curious symptom, as will appear hereafter.

(3.) Acidity is a never-failing annoyance in gouty stomachs, sometimes existing in extraordinary quantities, causing a very uneasy heartburn, nausea, hiccup, painful constriction at stomach, sour eructations, and often vomiting of watery fluid in large quantities. Eructation after meals is not unusual, sometimes consisting of ropy, tasteless fluid like water, sometimes half digested food, at others pure acid, or fluid so acrid and hot as to excoriate the mouth and throat : sometimes pure bile is thrown up.

When the stomach is loaded with these crude products, there is a sense of weight and oppression at that organ, sometimes of painful constriction, and there is always much relief obtained by free eructation or vomiting. If this do not take place, then heartburn is habitual, a sensation as if the stomach were drawn together, and sometimes actual spasm of that organ are experienced, and various other uneasy and distressing symptoms, which create much annoyance. The stomach in some cases seems as if involved in spasmodic constriction, as also the duodenum, with much tenderness on pressure externally. It sometimes feels as if it were harder than natural with throbbing pulsations there, sense of sinking and swimming in the head, and great general debility.

(4.) In this morbid state of the stomach, the constitution is exceedingly susceptible of the slightest exposure to cold

and wet, giving rise to continual, slow, gastric fever; a languor and irritability of the whole frame, and sleepless nights, with tendency to spasms at stomach, and startings.

Invalids, who are accustomed always to refer a cold to the chest, when they have no cough or difficulty of breathing, never think of the possibility of taking cold in the stomach; whereas in dyspeptics, this organ, being the weakest, is more liable to suffer from external cold than any other, and in none so much as in the gouty. Some, in fact, are so susceptible, as to experience serious spasms at stomach or vicinity, shortly after the slightest damp to the feet or exposure to rain. And nothing will occasion spasms of the gouty stomach so certainly as cold drinks, especially in cold wet weather; also a draught of porter or ale, soda water, oranges, &c.

The temptation to inhale such beverages is often very strong, from that febrile thirst which arises when the stomach is subject to congestion from repelled circulation. Many people yield to this ardent thirst, and an instinctive longing for a cooling draught; but they soon after have cause to repent the indiscretion. Distressing spasms frequently are the consequence, and sometimes alarming symptoms of gout in that organ. These attacks coming on some hours after, the cause escapes notice.

(5.) Imperfect digestion in gouty invalids is particularly experienced after committing any error in diet. And unfortunately, of all others gouty persons are the most indiscriminate in this respect, while at the same time they have the most need of caution. In former times, when simply affected with dyspepsia, they, if at all attentive, soon discovered the injurious consequences of improper diet; for the stomach immediately would indicate uneasy oppression. The food eaten would lie like a stone; or, in a semi-digested state, would rise in eructations, with nausea, headach, &c. But in the gouty *peculiarity* of stomach there is a degree of insensibility connected with its weakened

digestive power, which prevents any immediate sense of uneasiness from what has been eaten; and the invalid is apt to imagine that all is right about the stomach, when in fact that organ is quite incapable of its duty.

The first symptom felt is a sense of sinking and of distension by flatulence, which of course creates no alarm; there follows however drowsy confusion about the head, and an anxious restless night; pastry eat at dinner, or plumb-pudding, or fat meat, or apple dumpling, or baked flour in any form, &c. &c., eaten in perfect simplicity, are the true secret of this. And two or three days after the error is committed elapse, before the full disturbance of the alvine functions takes place, of which the food in question was the legitimate cause. It remains half digested in the stomach and first passages, deranging the bile and the whole functions of the bowels. The tongue of course becomes foul, the bowels costive, the skin dry and *chilly*; flatulence distends the stomach; a sense of weight, numbness, giddiness, and shootings in the *head*, with many nervous symptoms follow; and ultimately, the error being unconsciously repeated in the most innocent manner possible, the gout beats up the rear. The patient all the while asserting most confidently, that he has done nothing to deserve it; and it in fact often happens, that an invalid will be half exhausted and worn out by frequent attacks of the enemy, without ever learning by experience to what individual error the last attack is attributable. He knows he has been dining out a good deal—he knows that many tempting dishes have burthened the table—he knows that he has partaken of every one of them his appetite and inclination pointed out. But in what particular dish the gout lurked, he is entirely ignorant. And his conscience telling him he took a glass too much wine, this harmless indulgence gets all the blame; and the physician wandering in the dark, is glad to have hit on the tender point, and to add the weight of his authority to the patient's con-

scious sense of indiscretion: "It was the wine; the old error you know. You deserve all this." And the patient, quite submissive, pleads guilty. It was not the wine: the wine was not the "head and front of the offence:" it had only a small share in the effect; and if other errors had not been committed, the wine was a friend and not a foe to the stomach. This shall be yet proved beyond the reach of doubt, by a reference to experience.

It is truly surprising to observe often to what palpable errors in diet some gouty invalids are prone, solely from ignorance of what really agrees with the stomach, and sometimes from a prejudice for certain favorite messes. They complacently swallow them under the belief that they are wholesome; when in fact they are quite the reverse, and the true, though undiscovered, cause of many a pang. I speak not here of those who regard the palate as the sole guide in matters of diet; for *their* maxim is, that whatever the appetite takes a craving for, the stomach must agree with, and whether that craving proceed from caprice, a pampered artificial taste, the example of others who relish the dainty, or is really the pure unadulterated instinct of nature, which some simpletons consider an infallible guide in that which ought or ought not to be eaten, this appetite once excited, the stomach must do its duty, or be left to its fate. Appetite, relish, gust, must be tickled; the eye must be pleased; the craving of nature or habit must be gratified, cost what it will. Invalids of this class it is vain to admonish. Gout is *their* monitor: into his hands they are sure to fall. The discipline is severe. But let not the victims blame physicians: they have their own greed, gluttony, and epicurean whims to blame, and while they adhere to these, they must take the consequences.

There are however invalids verging upon the gouty habit, or already fallen into it, who, from long-continued dyspepsia, have learnt the necessity of consulting their sto-

mach in every article of food they put in their lips ; they practise self-denial, and discipline their taste most cautiously, for the sake of their weakened stomach ; and by dint of long experience, they do come to discover what food agrees with their digestion. But when their stomach from the simple state of dyspepsia has undergone the farther transition into the gouty peculiarity, these invalids will find all their former experience quite at fault. They have been accustomed to judge of suitable diet, chiefly by their sensations of comfort at stomach after meals. Now this criterion fails them entirely, and they may take, from day to day, the most hurtful diet without ever being aware from the sensations at stomach that it is hurtful. Woefully are they chastised for their unconscious errors by the invasion of gout, to them quite unaccountable. Such invalids as these can no longer trust to their own experience. To them a new set of rules is necessary,—rules founded on sound views of the true nature of gout, aided by a correct knowledge of their peculiar constitution. (See diet.)

This tendency of the stomach to be disordered by food, which creates no uneasy sensations at the time, is a very curious circumstance ; and is an almost invariable attendant of that weakened condition of the organ characteristic of gout.

Imperfect digestion of *fat* is often met with in gouty stomachs, and the smallest particle will disagree. Butter and pastry also lie sour and rancid on such stomachs. Cheese also, salads, and cold or acid fruits, and acid liquors, are uniformly hurtful, occasioning effects quite specific on such stomachs. Numerous other peculiarities might here be noticed, all indicating weakened power of digestion. But these will claim attention in the sequel.

12. The state of the *bowels* in the gouty.

Costiveness.

The bowels, in most gouty invalids, are habitually sub-

ject to costiveness; and that often for years before the gout invades. This is particularly the case in those who have been previously subject to determination of blood to the alimentary canal; the natural and uniform concomitant of which state is a torpid inactive condition of the bowels. Obstinate constipation of the bowels however often precedes gout in persons in all other respects tolerably healthy. Even when the daily evacuations are pretty regular, it often happens that the bowels become disordered in function; the secretions become offensive; faecal matter accumulates; flatulence is pent up in different parts of the canal, especially in the stomach and duodenum; and the whole bowels are involved in a spasmodic torpor, with difficult sparing stools, and uncomfortable sense of fulness and oppression. Then the head is affected with confusion and swimming, sometimes with dull weight and pain; the circulation becomes languid and irregular, the heat and sensibility fail; the feet are cold and torpid; the skin dry; and the whole actions of life partake in the derangement. There is no limit or definite character to be assigned to the consequences arising from this original evil. According to the constitutional peculiarity, so does the disturbance of the general functions vary.

The inconvenience and distress occasioned by constipation of the bowels, are much sooner experienced by some than by others. There are nervous and gouty invalids, who cannot pass the second day without some purgative medicine; others can go on for weeks together, while the evacuations are very scanty and imperfect. Some will go nearly a week without almost any evacuation whatever, while others would on the second or third day of costive bowels be most seriously indisposed, or be seized with gout, or some other specific malady. So much so, that it is a common observation, when the bowels get sluggish or confined, that the gout may be expected in those possessed

of the diathesis. It is a curious point to explain, how some people should suffer so immediately and severely by this cause, and others go on with impunity for days or weeks together, till the most extraordinary accumulations of morbid and offensive fæcula collect in the bowels; the duodenum surcharged with acrid bile, the stomach with acidity and fætor, the bowels with mucus; while the sallow countenance, dull eye, dry skin, coated tongue, and other unhealthy marks of constitutional disturbance, denote this state to be habitual. A practical observation solves the difficulty. While the constitution is on the whole vigorous, and the organs of life unimpaired, while the habits of living are favourable to health in other respects, we often find a constipated state of bowels produce but little inconvenience. The system while in health and vigour possesses a corrective power, whereby the defective activity of the al ine functions is compensated by activity in some other. Hence healthy people treat such derangements as a very light affair. One says, I am naturally of a costive habit; another, I am naturally bilious; a third, I am naturally weak at stomach, subject to indigestion and so forth: all this with an exulting smile, how excellent the health is nevertheless.

It is however far otherwise with the enervated and impaired constitution. And let the youthful and the healthy once come to know what a broken constitution is, then the state of the bowels will become an object of constant and anxious solicitude. Any interruption of this important function, immediately will disturb the other functions, and depress the energies of the whole frame. Whatever organ is unsound or weak, is the first to suffer. If the circulation has been previously subject to irregularity, costive bowels act as an exciting cause, and reinduce the disturbance. If the nervous energy has been impaired by excesses or otherwise, the individual, so soon as the bowels

get confined, becomes depressed, irritable, despondent, under indefinable anxiety and distress ; and ten to one he is set down as hipped. Under this delusive idea, the original evil is too frequently permitted to go on increasing, while the constitution, under mistaken habits of life, or exposed to other injurious causes, loses more and more its power of resisting the effects of the visceral obstructions existing. Then for the most part ensue determination of blood to some internal organ ; very often determination to the head ; perhaps a fit of apoplexy ; then follow cuppings and bleedings, and after all mayhap the gout appears.

In all this process, physicians have seen, or believed they have seen, for centuries nothing but plethora as the origin of all the disease and misery that ensues.

That some plethoric habits do contract gout in these circumstances, who can deny ? But that the plethora is the cause of the gout, is a conclusion loose and illogical in the extreme.

It is at once negatived by the fact, that if you bleed largely an invalid of a costive nervous habit, the gout often immediately follows ; if after bleeding you starve him, the result is only the more sure to take place. And under the constitutional circumstances described, gout takes place in the sober and abstemious as well as in the plethoric gourmand.

There must therefore be some peculiarity of constitution, common to the plethoric and the non-plethoric, on which gout depends.

In aiding our inquiry into this peculiarity, the frequency of the fact that retentive bowels so often precede and attend the gouty diathesis, and that a costiveness of some days or weeks continuance so often ushers in a fit of the disease, is a feature of gouty habits meriting marked attention.

Periodical Purgings. Besides habitual costiveness

as characterizing the gouty habit, there is another state of the bowels to which they are sometimes subject, quite the opposite, and that is periodical purgings.

It is a very curious observation, that those people who have been most remarkable for general costiveness for years before acquiring the gouty habit, will become subject to sudden attacks of purging shortly previous to the accession of gout. These spontaneous purgings are to them a new and altogether unaccountable change in their habit. They are at first charmed with the relief so produced, and hail it as a salutary crisis of nature. Farther experience, however, generally convinces them of the contrary. They come to find that their bowels have acquired an extraordinary degree of irritability, that they are weakened in tone, and remarkably under the influence of the weather and seasons ; and the slightest errors in diet affect them with disturbance. Those sudden purgings become occasionally violent and protracted, with severe twisting pain, straining at stool, and great general debility ; and after the purging subsides, there is not felt that happy relief at first anticipated ; but a degree of flatulence at stomach, indigestion, perhaps obstinate costiveness, frequent desire to go to stool without any effect, bearing down efforts, and perhaps piles.

There are various kinds of diarrhoea to which gouty habits are subject.

(1.) Simple watery diarrhoea. This occurs usually in debilitated habits, after any exposure to cold or wet, while the body is heated ; chiefly in spring and autumn. It is at times very severe and protracted. I have known an attack last for three or four weeks, almost uninterruptedly, causing much emaciation and general debility. More usually however an attack lasts three or four days, after which a relapse to obstinate costiveness ensues, with tendency to piles, uncomfortable fulness in the stomach, uneasy sensations in the head, and sometimes gout.

(2.) **Bilious diarrhoea.** When costiveness has continued some time, bilious diarrhoea sometimes operates as a spontaneous relief to the disturbance thereby occasioned. The bile long pent up in the first passages, gets exit into the alimentary canal ; irritates the sensible mucous membrane by its acrid stimulus with twisting, griping pains, and rolling sensations in the bowels, which create great depression. The bile is at length discharged in copious quantities, acrid and hot, and often excoriating the anus, causing very violent and painful evacuating efforts.

(3.) In some cases, especially in autumn, these biliary purgings are still more severe, and assume all the peculiarities of cholera morbus ; spasms in the bowels, exquisite griping at the navel, sickness, vomiting, tenesmus, violent pain at stomach and duodenum, which feel as if twisting themselves in all possible contortions ; anxiety, cold sweats, and great depression of strength. Such attacks as these usually come on after some exposure to cold and wet, while the body is heated ; beginning with chilliness, cold feet, spasms, severe headach, giddiness, &c. Errors in diet contribute. Fruit eaten when the stomach is loaded with bile, or while the perspiration is checked suddenly ; also cold drinks will cause the same.

In some cases of diarrhoea, the stools are mixed with blood, and periodical purgings of blood are not uncommon in gouty people.

(4.) There is another affection of the same kind to which gouty habits are sometimes subject, especially such as are much reduced and disposed to dropsy ; and who reside in fenny aguish districts.

It begins with chilliness and shivering, cold extremities, great depression and sense of sinking, often swimming in the head, and sense of great weight and pain across the loins, and betwixt the shoulders ; there is sickness and oppression at stomach. The invalid is obliged to go to bed. Then succeed reactive fever, wakefulness, mental wander-

ing, nervous confusion, spasms, severe pain in the bowels, and purging. The stomach and bowels are enormously distended with pent-up flatulence, with a rumbling noise and twisting, irritative, griping action around the navel and in the colon. There is painful tenesmus, frequent watery stools, with much straining and blood.

The skin is cold and clammy with partial sweats, the pulse quick and hard, tongue coated but moist. Such an attack I have known continue for weeks, till actively treated, and then pass off in a fit of gout in the extremities.

It is curious to observe, how subject gouty invalids are to cholera and bilious flux, at those seasons when the disorder prevails.

In these attacks of watery, bilious, or bloody diarrhoea, the bowels seem to be affected with an inordinate sensibility, with a determination of blood to the mucous membrane; and this determination is the consequence of that weakened irritable state of the general habit, produced by the disposing causes.

13. There is another set of functional disorders to which gouty constitutions are very subject, arising from a determination of blood to the *kidneys* and *urinary passages*.

The first affection is indicated by a sense of weight and stiffness in the loins, sudden spasmodic attacks of excruciating pain across the back, with entire inability to walk upright; the invalid is obliged to keep the stooping posture, and loses the active use of the limbs. It is usually taken for lumbago, or inflammation, being commonly occasioned by exposure to cold, as in riding in an open vehicle; sitting in the open air, in arbours, or on benches, while hot and fatigued; and, what is curious, so soon as gout fixes in the feet, the loins get immediate ease and ease.

Actual inflammation of the kidneys sometimes does occur in gouty habits; but more frequently there is simply

a determination of blood to the mucous membrane of the ureters, with a secretion of matter resembling pus, which clouds the urine, and leads to the belief of suppuration in the kidneys, or gravel. There is sometimes great pain in the parts, and general fever. In one instance of this kind, the patient had been treated for abscess in the kidneys, and was much reduced with slow hectic fever. Complete and sudden relief of every symptom was obtained by a fit of gout.

When the urethra is similarly affected, which it often is, especially in old people, gravel or stricture is believed to exist. There is heat, pain, scalding, frequent tendency to urine, but much difficulty in voiding it; it comes away in drops or involuntary gushes, the invalid crying out with pain; and sometimes the urine is bloody.

Such affections, however violent and painful, for the most part subside suddenly, showing that the parts are not diseased in texture.

One old gentleman liable to this affection, had been treated for a stricture for several years by bougies, to which recourse was had on each attack, without the smallest benefit. He was cured by a fit of gout.

Cases similar are not rare in practice.

One in particular was affected with symptoms so violent, as to induce the belief of inflammation of the bladder; which was distended with urine without the power of voiding: efforts were continual and violent, and attended with excruciating pain; the urine coming away in mere drops, as if boiling hot. He was freely bled, and in two days gout fixed in the foot.

14. This leads me to notice the state of the urine in those disposed to gout.

This is variously affected, being liable to remarkable changes both in quantity and quality. At times it is scanty, high-coloured, and thick, depositing a copious sediment, pink or brickdust, and clouded with mucous flakes; on

other occasions it is plentiful and pale, or limpid as water.

Some gouty invalids are so susceptible, that they immediately feel desire to urinate on drinking any fluid; others, without any evident cause, will have all at once an abundant flow of urine for days together, after which the water will be again very scanty for a considerable period.

There are some debilitated habits, who in their progress to gout are subject to an extraordinary flow of urine every spring, resembling diabetes.

The urine in the gouty sympathizes in a peculiar degree with the skin, and this mutual sympathy is much under the influence of the weather and seasons.

The state of the stomach and biliary system also greatly affects the urine.

Dr. Scudamore has paid much close attention to the gouty urine, and his work may be consulted by those who expect any light from this quarter on the pathology of the disease.

15. Perspiration.

In gouty habits there is often an unusual tendency to perspire on slight exertions, the skin immediately afterwards becoming cold, torpid, and doughy. Some perspire very freely in the feet, and are never in good health unless this is the case. When perspiration is checked and the feet become cold, dry, and torpid, then it is a remark, how often gout succeeds. And as is usual with loose medical reasoners, the obstructed perspiration has been declared the cause of the gout, through the plethora thereby occasioned; whereas the checking of the perspiration is merely simultaneous with the other effects of cold so applied. Whatever evils follow, cannot be owing to plethora, for ten times the increase of this is daily occasioned by a good dinner, without inconvenience. And when the perspiration is obstructed by a severe cold, a more than equivalent evacuation is often made by urine, stool, or vene-

section, when nevertheless the gout immediately takes place.

In winter, it is true, people perspire less than in summer, and in winter they are more subject to gout; but in summer, how often do attacks occur! Persons otherwise disposed in fact, will have the fit under due exciting causes, whether they are perspiring or not.

The whole facts on the subject, therefore, amount simply to this; the enervated gouty invalid, being of a very susceptible temperament, easily perspires on the slightest exercise, and that in proportion to the heat of the weather: whence some who perspire at every pore in summer, and can hardly walk one hundred yards without feeling it break out, will on a sudden chill, however temporary, be certain of gouty symptoms, and that even although free perspiration is immediately excited. In winter, the susceptible frame is much more subject to the impressions of cold, whereby the perspiration is habitually suppressed; but these people, if duly careful in other respects, will keep entirely rid of gout for weeks or months nevertheless, and indeed some are better in winter than in summer.

Mere freedom of perspiration, therefore, will neither keep off nor cure gout: suppressed perspiration will not necessarily bring it on. It would be a sad thing for poor humanity, if every temporary or occasional suppression of the perspiration were not capable of being corrected by the resources of the constitution, but must entail such inveterate maladies as gout, &c. There is a corrective power of constitution, invariably in reserve for such occasions, and physicians must just take some other and more comprehensive view of things, in order to account satisfactorily for diseases.

Free perspiration is always salutary of course, the reverse is ultimately injurious; but we shall find the want of perspiration much more frequently the symptom of a disordered state of constitution, already existing, than the

cause of the malady, which appears to arise from it, and is therefore attributed to it.

16. A tendency to *conversion* of *various functions* into *each other* is an interesting characteristic of the gouty habit of body, and goes far to explain some of the functional peculiarities already described.

As examples, attacks of purging remarkably alternate with copious perspirations. In hot relaxing seasons, when the skin perspires freely, a sudden change to cold or damp weather, or an exposure in a dewy evening, will suspend the perspirable state of the skin, and occasion an extraordinary secretion of the mucous membrane of the bowels; whence an attack of watery diarrhoea. Sometimes an excessive secretion of bile almost immediately succeeds the checking of perspiration from cold or wet, which is either locked up in the first passages, adding to the oppression, fever, and general disturbance of the functions connected with the subsequent reaction; or the bile, finding vent into the bowels, occasions biliary diarrhoea. In Spain the biliary fever is sure to follow any exposure to a current of air, when the body is perspiring. In this climate, exposure to a current of damp air is one of the most usual causes of disorders depending on increase of biliary secretion.

How the urine sympathizes with the skin every one knows. When perspiration is free the urine is scanty; when the skin is inactive we often find a copious flow of urine. This tendency to sympathize is much greater when the constitution is much enervated.

When this tendency to convertibility of the secreting functions is strong, it is surprising sometimes how small a portion of mercury will excite salivation, and salivation will sometimes sympathize with the skin, the bowels, or the kidneys.

In impaired constitutions, the minute arteries seem to partake in this tendency; whence those hæmorrhagic at-

tacks to which irritable gouty habits are sometimes subject. In an irritable state of the arterial system, any cause determining the blood towards the bowels will occasion an arterial secretion of blood along the course of the alimentary canal, instead of the natural watery secretion. The same sometimes takes place in the ureters and urethra, whence bloody urine: also in the bronchiæ and nostrils, whence spitting of blood and hæmorrhages will ensue. In gouty habits this hæmorrhagic tendency is sometimes so very strong as to show itself on the slightest causes: a scratch will at times bleed so profusely as with difficulty to be stopped. The hæmorrhagic diathesis is common in fenny, aguish districts. It is always connected with obstructed liver, and a peculiar state of the nervous sensibility at the time. It occurs chiefly in damp weather. It is not essentially connected with plethora. Any cause calculated to debilitate the body much, will convert external hæmorrhage into a fit of apoplexy or paralysis, and sometimes into gout.

17. *Nervous symptoms* incident to the gouty.

I now come to notice the symptoms indicating that derangement of the cerebral and nervous systems, for which the gouty are so universally remarkable. These symptoms, so far as they proceed from determination of blood to the head, may be first briefly noticed.

As the inflammatory diathesis begins to merge in the nervous, we find the invalid subject to occasional attacks of swimming in the head, a sudden giddiness comes over him unexpectedly, and he is glad to take hold of some object near him, to prevent his falling. He will even for the moment lose the power of recollecting where he is; and he has a sense of fulness or choking in the throat, perhaps throbbing in the temples, and singing in the ears. Such attacks of swimming in the head leave him very nervous for some time after. He is confused, has a sense of numb-

ness and weight in the head, with more than usual flatulence; and sometimes an unsteadiness of gait, and inability to fix the mind.

By and by these fits of giddiness, if not met by proper remedies (and bleeding and cupping do not always remove them), will be attended with still more uneasy and oppressive symptoms. A continual sense of weight and fulness about the head or over the chest, a drowsy languor and sleepiness after dinner, or in the evening, great confusion of ideas, aversion to exercise or to thought, flushing of the face, sometimes beating and throbbing sensations in the throat and temples, palpitations at the heart, a tendency to sigh deeply and to start suddenly, when dropping over in a nap. All at once a sudden rushing sensation takes place towards the head, which overpowers both the recollection and sensibility. On recovering somewhat, there is perhaps a tendency to dry vomit, or the stomach, filled with wind, feels tight and full, as if overloaded; and numbness is felt in the head, or shooting pains at some points. Great variety in these sudden attacks occurs. Sometimes intense head-ach is felt, but seldom: more usually startings, a sense as if something burst in the head, a sudden convulsive shock: sometimes as if a sudden stroke were cut across the forehead; and at times a rushing, as sudden and forcible as if the whole blood in the body were directed to the head, with the force of a column of mercury. These and such symptoms causing sudden shocks almost always come on while falling asleep. They are merely apoplexy in embryo: and those who are subject to them, sometimes run a very narrow risk of their life when they are severe. Some will be struck in a moment while on horseback, others while stretching the arms and yawning, others when reaching high up, or straining; and some while sitting at table.

Some are very subject to them if the bowels are costive; others, if bilious, immediately feel the head swim; others

after taking cold drinks; some on getting wet feet, or after exposure in wet weather. The spring season, on the access of warm weather, is fruitful in such attacks. Also in very hot weather in summer they prevail. Most gouty invalids can recollect the time when they were subject to such attacks. And as the gouty disposition grows, they become more and more connected with all the indications of nervous debility and derangement, which characterize that state, and which we now shall describe.

18. A long catalogue of uneasy sensations, usually denominated nervous, and styled anomalous, because not distinctly referrible to any specific organic source, continually prey upon the peace and comfort of the unhappy invalid, who is about to become the victim of gout; and sometimes long before this troublesome visitor comes in good earnest.

A general view of these only is here offered.

19. *The state of the mind.*

As the brain is the organ of thought, it might be expected that where its energies are impaired, or its functions much disturbed by excess of circulation or otherwise, the mind should be particularly affected in its strength and capacity. This we find to be the case in most gouty invalids, although with great diversity, depending on mental cultivation, the degree of application, and the nature of intellectual pursuits.

Those who are given to excessive mental labour, thereby aiding to accelerate the gout, find a degree of mental imbecility growing upon them for some time previously. They may have been distinguished by great decision, energy, clearness, and activity of thought, which qualities they now find to fail them. They feel, it is true, a more than usual ardour and enthusiasm in any pursuit; but the mind is quite incapable of continued or intense application, especially to abstract subjects, such as require efforts of thought. With acute susceptibility and activity of

mind, there is want of power to concentrate and keep up the attention fixedly. Whence an abrupt and desultory habit of thinking is acquired. Great irregularity in the mental activity is experienced. At times there is a remarkable rapidity of conception, bordering on confusion, with singing in the ears; thoughts and images playing around the fancy in irregular and fantastic array; and the current of thought is hardly within the power of volition: at others there is a total vacuity and absence of mind, and an incapacity for recollection, for close thinking, or for examining a subject of extensive or complicated relations.

Some find their memory very fallacious, and especially in recalling names. They at once recognize your face, but by no effort can they recollect your name: and many an anecdote is broken short from forgetting some name important to the thread of the story.

Numerical calculations are particularly annoying to some gouty people. I have known others, who could hardly command attention to write a letter, on even a trivial subject. The mind wanders in spite of them; and the thoughts run all at right angles to each other, one taking the place of another, without order or arrangement, constituting a painful confusion or distraction.

When the mind is in this weak and exhaustible state, and the brain so affected with irritability, and the man by profession or otherwise is called to exercise much attention to important objects, the effects are doubly felt, so that the crisis of bodily ailments is thereby much hastened. When mental labour is persevered in by a kind of forced excitement, the man overdoes his strength before he is aware, till suddenly arrested by serious determination to the head; and gout is not the most formidable of the consequences so occasioned.

This artificial excitement, operating on the mind, while it lasts causes uncommon activity and quickness, and raises

also very much the animal spirits. Whence the common remark, that too high health is the eve of disease. Many gouty and apoplectic persons declare that they never felt themselves in better health and spirits than for some time before their seizure. It is a fallacious feeling, for insidious mischief is going on, while the invalid is entirely insensible of its progress.

This unusual buoyancy of mind is far different from the calm, sedate energy of true health; and most of those in such circumstances are prone to unaccountable fits of gloomy depression, which no effort can relieve. In solitude, therefore, society is longed for; and in society, a reaction of the spirits causes an inordinate excitement; whence exhaustion and languor, listlessness and despondency.

In the gouty habit, slight causes greatly excite the passions and emotions, especially those of a depressing tendency, whence mental irritability, anxiety, agitation, or despondency, continually prey upon the soul.

The irascible temperament of the gouty is proverbial. Impatience of contradiction, of disappointment, or of trifling annoyances; or extreme mental irritability, are tendencies the more distressing as they are entirely involuntary. One gouty invalid can generally predict the access of a fit by an irresistible disposition to bestow the epithets of stupidity, blockhead, &c. on his favourite servant.

Another old gentleman of humane, and placid, and considerate temperament, is subject to occasional fits of incontrollable passion when on the eve of gout, so as to lose the power of utterance. He is the first himself to condemn his want of equanimity.

Sydenham well remarks, that this disorder might as well be denominated a fit of passion or anger, as of gout.

Some, shortly before gout invades, or in the intervals of the paroxysms, have experienced excessive despondency

and sensibility of feeling, and without any real reason, give way to melancholy, and even weeping, which they find to be irresistible.

One of this description, for some years previous to his gout, was accustomed to become unusually sympathetic and compassionate about the month of November. His annual fits of charity, however, although opportunely coincident with the setting in of cold weather, were finally carried off by a fit of the gout.

In another, melancholy took a different turn. He had lost a little money, which slightly fretted him at the time. Some months afterwards he began to descend into the vale of gout. His loss, long since past, now lay like a mill-stone on his spirits. He constantly brooded over his misfortunes, giving vent to his pecuniary sorrows in copious tears. Anticipating starvation, he became a miser even to childishness.

Another, whose gout, long established, had begun to assume the atonic form, would weep most bitterly over the supposed hopelessness of his own case.

Another, who by a course of low living, contrary to all advice, had brought on the atonic gout, became unusually solemn in his sentiments, from being remarkably gay and cheerful. He would expatiate frequently on death, in a mixed mood of anxiety and satisfaction; at one time, dwelling on the advantages of being at rest; at another, shrinking from the sad anticipation and clinging to his physician. Both of these were shortly after seized with retrocedent gout in the stomach, and died.

Hypochondriasis, in all its multiform and sable hues, is familiar to gouty invalids; and the mental spirits are ever at the mercy of the weather and seasons,—the sport of every incident in life. Misfortunes, domestic losses, grief, disappointment of fondly-cherished prospects, &c. &c. sit down most heavily on the soul.

Few experience the suicidal gloom of approaching No-

member so severely as he who is about to atone for past errors and indiscretions by an attack of gout,

Lowness of spirits, irresistible melancholy, and the most gloomy forebodings, are felt on the access of the winter, especially till the shortest day, which are heightened in no ordinary degree by damp, dull, rainy weather. Solitude is a dungeon; and if left to himself, the individual can hardly be persuaded that he is not just about to pay the debt of mortality. Society therefore is ardently courted, and exhilarating conversation, and never-failing cards, and too often the pleasures of the table to such excess, in the endeavour to fly from one's self, as ultimately aggravates the whole constitutional disorder.

20. Sleep.

The above states of the mind do not relinquish the unhappy invalid even in sleep, which, in an irritable condition of the brain, is always disturbed with wandering and incoherency in dreams.

Sometimes the gouty invalid, especially those disposed to apoplexy, will sleep deep and profound, without dreaming, and is roused as if from a lethargic torpor.

In other instances, startings, wakefulness, irritability, night-mare, and the most horrid and distressing dreams, attend the disturbed slumbers, causing involuntary exclamations in sleep, also somnambulism. Visionary objects, arrayed in all the terrific distinctness of reality, glide before the excited imagination; or distressing, dangerous, and alarming incidents befall him in his nightly history. He is pursued by an infuriated animal, or some inveterate enemy, whose malignity he makes vain efforts to escape; and on awaking finds he has the gout. He is confined in a deep and airless dungeon, or immovably pent up in a close and narrow crevice; and in ideal suffocation, he involuntarily starts from sleep; then generally finds the head confused, the chest oppressed, and the stomach greatly distended with flatulency.

I have met with several, who, in falling over to sleep, experience a sensation similar to floating on the boisterous waves of the sea, with roaring noise in the ears, and constant tendency to submersion: while the head is supposed just dipping under the surface, they suddenly awake in a start, and find they have had a shock or fit of an apoplectic or epileptic nature, leaving a numbness or tension in one or both arms or wrists. Others feel as if gliding over the brink of a precipice, and start to recover themselves. Others feel as if hanging to the ceiling, ready to drop every moment, &c. One gouty invalid is in the habit of awaking in a great hurry, believing himself too late for the coach. Another is frequently awakened by the loudness of his own cries in sleep, and finds his chest locked to the couch in incubus. The sensation of a pistol firing in the ear, and other such sudden convulsive shocks, are familiar to the gouty and nervous.

Flatulence at stomach, dryness of the mouth and throat, singing in the ears, confusion and rushing in the head, throbbing in the temples and ears, a sense of tightness or weight across the chest, and a great tendency to startings, generally protract sleep for some hours after going to bed.

Uneasy sensations in endless variety haunt and disturb the weary hours of repose; and he awakes languid, irritable, and unrefreshed, to spend a day of listlessness, fretfulness, and melancholy.

Few persons in this nervous condition can venture on supper, without certain aggravation of their wretchedness during the night: they feel an irresistible drowsiness without the power of enjoying sleep. Also a close bed room, or curtains drawn, are found intolerable to the gouty; and some are obliged to sleep winter and summer with their windows open all night. While others find susceptibility to cold so grow upon them, that they are glad to shut up carefully every crevice whereby air could gain access, and

nightly smother themselves up in no very enviable state of half suffocation and nervous broken slumbering till morning.

It is these that night-mare haunts like a ghost, and few gouty invalids there are who do not become familiar with this intruder. They awaken in a fright, as if locked immovably to the couch ; sometimes as if the whole head and chest were destitute of feeling and power of motion ; at others, as if a hundred weight of lead lay upon the heart ; at others, as if the chest were locked in an iron screw, and with panting efforts to breathe.

Previous to the attacks of this demon, restlessness, palpitation of the heart, throbings in the neck, head, or temples, are felt.

Sudden convulsive startings in the limbs are common ; also convulsive spasms at stomach, and at times of the other parts of the body, with partial chill rigor.

Drowsiness and languor after meals generally precede these sensations, with some confusion about the head, flushing of the cheeks, wind, sense of sinking at stomach, and cold extremities. Gouty invalids, troubled with nervous symptoms and depression of spirits, will sometimes be weeks together without obtaining a single night's comfortable sleep, and are often quite worn out by constant wakefulness.

21. Among the indications of nervous derangement may be mentioned impaired perceptions of the senses.

Deafness is not unfrequent in the gouty, and this generally ensues on ear-ach, or cold, or rheumatism in the head ; and sometimes there is a discharge from the ears. The hearing is sometimes extremely sensitive to noises, and especially to loud and disagreeable sounds, which thrill through the agitated nerves with great intensity.

The sight in some is remarkably affected ; dark specks or clouds appear to float before the eyes, and flashes or sparks like fire glare on the nocturnal vision. There is sometimes

a dull pain in the eyes on exposure to a strong light. The pupils have a singularly contracted appearance, and there are sometimes hallucinations and double vision.

A variety of anomalous sensations are felt in the limbs ; prickings, itching, twitchings, creeping, stinging, and aching pains, which wander from point to point ; numbness and partial chilliness pervade particular limbs ; also stiff sensations and cramps in the joints, the wrists, calf of the leg, and toes.

22. In gouty constitutions, the heat and nervous sensibilities of the body are very irregular and easily disturbed ; partly arising from the weakened and irritable state of the circulating functions, but chiefly from the weak and irritable state of the nervous system.

On the whole, the heat of the body is much deficient ; hence the incapacity of resisting cold, the hands and feet immediately becoming numb and torpid, and the whole skin partaking in this torpor. The circulation is at a stand in the surface and extremities ; and the internal organs being sympathetically affected, a train of uneasy sensations ensue in the stomach, chest, bowels, or head.

This tendency to derangement of the internal functions from causes affecting the sensibility, circulation, and heat of the surface and extremities, is very remarkable, and shows itself in various ways.

The effects are sometimes instantaneous. Thus a gouty irritable invalid, on being caught in a shower of rain, or getting damp feet, will almost immediately be seized with violent gripping pain in the bowels. One was so very susceptible, that if in walking along the street he crossed over where it was wet, he would on the instant feel a fixed pain in the side near the heart ; sometimes in the hepatic region ; and sometimes a shooting pain in the head.

Another, if he were to stand still on the spot only for a few minutes in the open air, especially if the ground were damp, was sure that evening to be seized with spasms

at stomach, flatulence, indigestion, and invariably passed a sleepless night.

In most cases, the individual during the exposure is quite unaware of receiving any harm, feeling only a slight numbness or coldness of the parts exposed. But some hours, or perhaps a day or two afterwards, the effects appear. Headach, giddiness, languor, drowsiness, and other marks of determination of blood to the head, will often be felt in the evening, in consequence of some exposure to cold or wet during the day.

The feet of gouty invalids are almost invariably very cold to the touch, when the person himself feels them not cold. There is a deadness, torpor, or insensibility in them, which prevents the usual sensations from cold applied there.

This numb, torpid state of the feet, with deficient heat and circulation, is often owing to constitutional causes. Sedentary habits, late hours, hard study, biliary obstructions, indigestible food at stomach, will produce this torpor and stagnation as much as any thing.

And when, in process of reaction, the heat and circulation are restored, then the nervous sensibility of the feet returns in excess, attended with a tingling, aching, or formication, so accurately described by Parry. It is a peculiar galvanic feel pervading the limbs, especially along the course of the great nerves in the muscles of the calf, the ankles, the wrists, or feet. It is a sensation not always unpleasant or painful, although sometimes very much so.

Parry says, he has known many persons who are never in good health unless they feel this tingling every morning on getting out of bed. These people will find their beds damp. The sensation is far from being confined to morning, for it often follows after getting a wet skin; and some gouty invalids feel it immediately, if they stand on a cold or damp floor. The cold strikes a peculiar crampish

numb feel up the ankles; and if he stands long enough, this will affect the stomach in a similar way. Brown alludes to the same feeling. "Often when the upper parts of the body have been recruited with enough of sleep, after getting up, the podagric, feeling a state of languor in the lower extremities, and a desire for more sleep in them, is obliged to go to bed again."

Irregular states of heat and cold are also remarkable in those disposed to gout; occasional chilliness, and even shiverings and subsequent flushings, are felt; and at times a general sense of burning heat, which is most oppressive. In cold damp weather, for instance, a very slight exposure to the air will chill the whole frame; and when the individual returns to a warm comfortable room, or smothers up in bed, then there succeeds much uneasiness from heat, palpitation in different parts, drowsy languor, thirst, and restlessness. This is what is termed collapse and reaction: and sometimes, in debilitated habits, it takes place daily with the regularity of hectic or remittent fever.

Connected with these states of collapses and reaction, many unpleasant nervous symptoms are felt. In the first state, there is chilliness, oppression at chest, sense of fulness in the abdomen, of sinking there, languor, low spirits, giddiness, drowsiness, coldness at stomach, and often shivering.

Heat and sensibility no sooner return, than a new train of symptoms ensue. Irritability, wakefulness, oppression, tightness or even pain in breathing, a tendency to deep sighing, palpitation of the heart, convulsive motions, a sense of suffocation; and often weight, fulness, and throbbing pain in the head; sometimes shooting pains deep in the head, as if it would split open, &c. The stomach is now distended with wind, rumbling noises are felt in the bowels, spasms, sudden sense of sinking as if something gave way within; startings; the feeling of a ball moving about in the throat, stomach, and bowels, and many other indefinable sensations. The stomach generally

feels in a state of hiccup, or a sense of uneasy gnawing, screwing, or burning, with acid eructations and wind.

Wakefulness and an irritable excited imagination are not the least of the evils, sleep being usually prevented till far in the morning ; and when at length the invalid, breaking out in a partial sweat, is enabled to close his eyes, his slumbers are broken and unrefreshing. To avoid these nocturnal horrors, I have known the unhappy invalid resort to opium in desperation, to the great injury of the constitution.

It is from this deficiency of heat and of sensibility in the enervated frame, that the weather and seasons gain such an ascendancy over the comfort and health of the invalid. Every change from cold to heat, or heat to cold, is felt in an unusual degree ; and the man in fact becomes so sensitive, as to be a complete living weather glass. The most remarkable changes in the bodily sensations and the mental spirits are produced by every the slightest change of the atmosphere ; the shifting of the wind, the revolutions of the seasons, the alternations of night and day, a wet cloudy day, &c. &c. produce each their specific train of melancholy associations, and of bodily ailments.

Changes to cold, especially with moisture, or differences in the degree of exposure at different times, immediately affect the nervous sensibilities, the heat and the circulation of the body. A cold wind, a damp atmosphere, early morning air, chill dewy evening, exposure in the rain, walking in the wet streets, sitting in a draft of air while heated, sitting or standing in the open air, exposure by open windows, riding in open vehicles, a removal to the moist sedative air of the sea side, the approach of chill, damp November weather,—these changes are fruitful in all the symptoms peculiar to the state of collapse, which symptoms are serious in proportion as the energies of the frame are low at the time, or the functions much disturbed previous to the exposure. Persons who have been reduced by

bleeding or low diet, or who have become nervous from habitual confinement and close air, &c. &c. feel these changes produce unusual inconvenience and disturbance of the health. They are perpetually subject to colds in various forms, spasms, rheumatic pains, depression, chilliness, &c. &c. on every change of dress, of weather, of the seasons, or of their residence. There are those who always are taken with a cold on removing to the sea side, and not a few are seized with the gout. Others again, in returning from the sea side to the warmer inland parts or to London, take a severe cold with reactive symptoms. Even the change from one room to another will give cold to some susceptible habits, or sitting near an open window, or stripping in order to shift their flannels. In fact, the modes of catching cold are innumerable, when the frame is thus delicate; and of all susceptible states, the gouty is the most so, although the invalid seldom is aware at the moment of exposure that he is taking harm. It is of the very nature of the gouty state of body, to show the effects of such exposures, one, two, three, or even more days after the evil has been contracted. And this is easily explained: the first effects of cold are sedative, and occasion a collapse with its peculiar symptoms; it is when reactive symptoms ensue upon previous collapse, that pain, rheumatism, fever, and such other mischiefs, show themselves. In very enervated habits, it is sometimes hours or days before reaction succeeds upon collapse, when in fact the particular exposure which gave it origin has been forgotten.

In strong constitutions, reaction immediately ensues upon exposures to cold and wet; whence you will see a robust healthy person, in cold or wet weather, acquire a ruddy glow on the cheeks and surface exposed; and scarcely any exposure will so extensively affect the frame as to produce suspension of the nervous sensibility, circulation, and heat, or disturb the internal functions. They will

in a half-clothed state encounter any weather, and still the heat and the circulation are maintained in healthy equilibrium. Their constitutions are so strong, that reaction immediately succeeds the impressions of cold on the surface.

Far otherwise is it with the impaired, enervated constitution, possessed of the gouty tendency. On exposure to cold, you see the circulation leave the surface; the skin become pale, numb, and chill; the hands and feet torpid and bloodless; and a general diminution of heat and sensibility occurs over the frame. Then the internal organs are oppressed with redundant circulation, their functions interrupted, and universal depression and disorder result. In exact proportion as the gouty habit is deeply formed, and connected with much enervation of the frame, so does this period of collapse continue the longer before a reaction supervenes; the whole of which period is spent in much uneasiness, unaccountable depression and disorder. Gout, in short, in popular language, lurks in the habit; and when it at length does appear, it comes unexpected, because not connected with any palpable cause at the time. It comes as a consequence of the reactive excitement of the nervous and circulating functions, and the return of heat; and if the man has indulged in the interim in wine, or a good dinner, or other liberties, this often gets the whole credit of the fit. Whereas the seeds of the fit were sown days before, and twenty-four, forty-eight, or more hours having intervened betwixt the symptoms of collapse and the complete reaction of the frame, is only the natural peculiarity of a constitution, whose powers are much reduced by the disposing causes, and therefore requiring the greater interval to rally after that torpor and suspension produced by cold.

In this interval it is that the whole catalogue of symptoms usually denominated nervous press with accumulating horrors on the unhappy victim; and sometimes he goes on

adding the effects of one exposure after another, unconscious of the insidious source of his sufferings, till a very severe crisis ultimately is engendered.

I do not say that he can help this altogether; because his constitutional susceptibility is so great, that in order to escape entirely he must take a degree of care to which he would hardly submit, even if he *knew* it to be necessary. But unfortunately, he takes no proper means to restore the hardness of the frame, and he goes on exposing himself day by day, while his liability to cold is daily increasing, and thus prepares for himself tortures, which, when they do arrive, are referred to any source but the right one.

It is surprising, too, how much this susceptibility to cold varies at different times. The same person will get a wet skin, or wet feet, time after time, without much inconvenience; but on some unfortunate occasion a very slight exposure in this way will occasion the most serious effects; and so of other errors.

In like manner the disorder that is produced by exposure to cold varies so indefinitely, that he finds all his experience completely at fault, in any endeavour to judge of his symptoms and trace them to their true origin. His usual advisers are equally in the dark, and bring in hypochondria to their aid; and so the unhappy invalid struggles on without sympathy, without actual disease, but with much real suffering; and when the crisis at length arrives (it may be gout, it may be apoplexy and sudden death), it is too late to inquire into the reality and extent of the mischief. Such cases occur but too frequently in daily experience, and I therefore, even at the risk of repetition, shall sketch out again some leading symptoms attending this nervous state of constitution. The subject is too important to be slightly glanced at.

Feverish wakefulness, from anxiety indescribable and indefinable at night; at the same time a tendency to drowsy slumbering which yields no repose; every position in bed is uneasy

and irksome; the individual tossing about in sleepless anxiety till approaching day-light. Some have vainly adjusted their bed as often as five or six times in a night. Singing in the ears and starting in sleep are particularly annoying. Sudden shocks, like a galvanic charge from the stomach to the head; partial rigors, like drops of water trickling down the limbs; numbness and pricking sensations in the fingers; stiffness and screwing pains or cramps in the joints; deep sighing; palpitations; wind at stomach; uneasy weight and numbness in the head, or throbbing, shooting pains there. Some nervous gouty invalids describe in a most expressive manner the sensation of a mysterious something which they term *Gout*, wandering over the frame from joint to joint with the rapidity of lightning, and in the most capricious manner; now felt in some part of the head; in a twinkling transferred to the wrist, thumb, elbow; then in some part of the bowels, the hip, knee, or toe joints; and again reverting to the head, and thus successively flitting from point to point in a manner equally instantaneous and unaccountable. This is what is termed having the gout all over; they can refer it permanently to no particular part. It sometimes amounts to a teasing and harassing pain, wandering over the frame. Sometimes the heart suddenly labours as if grasped by a powerful hand, the stomach heaves in convulsive spasm, the neck is suddenly twisted, the jaws clench spasmodically together; painful tendencies to stool or urinate are suddenly felt, and distressing cramps in the limbs.

In the act of deep sighing the stomach heaves, and the blood rushes up to the head, and fits nearly allied to apoplectic take place, just while the individual is composing himself to sleep. In other instances a sudden numb shock is felt at one point in the head; then succeed acute shooting pains in that spot; a glow of heat, like warm water pouring down the limbs, conveys a peculiar crampish pain to the feet, and then this pain will vibrate betwixt the spot in

the head and the toe joint so affected with cramp. This is always attended with unpleasant sensations in the alimentary canal, especially a ball rolling along, with pent-up wind and a rumbling noise. When at length towards morning the invalid is enabled to compose himself to sleep, his slumbers are broken and unrefreshing, and many a sad and perplexing adventure occurs in his dreams.

After such a night, it is seldom the invalid emerges from his couch in a state of vigour and refreshment, but is haggard and care-worn in his aspect, languid and irritable in his sensations; depressed in spirits, or peevish and fretful; utterly incapable of activity or of enjoyment; without appetite, without energy, settled melancholy, apathy, and irresistible languor, becloud and embitter his morning hours. There is a weight over his chest like a millstone; his head is muddy and confused, his gait unsteady and inelastic; a raw wet day shuts him up in the dungeon of ennui and hypochondriac gloom; hot weather fatigues and oppresses him, or a chill east wind pierces to his very bones.

His best enjoyment is towards evening, after dinner and wine, when occasionally an unusual and unaccountable buoyancy of spirits and elasticity of frame is experienced. There are times when even this interval of comfort is denied; he has scarce eat half a meal, when his stomach feels distended as if he had eat too much; wine creates acidity, heats and flushes him, and oppresses the head; and an irresistible drowsy languor steals over his evening hours. Yet the very prospect of his bedchamber is appalling: the couch to him has lost all its sweetness, and he lingers the very last at the card table, as if anxious to extract the very dregs of enjoyment from that which is only amusing in so far as it induces a momentary oblivion of his sorrows.

It is no wonder that the invalid so situated should prefer a sharp fit of gout to such a continual train of

harassing sensations, anxiety, and suffering, which keep him in a state betwixt living and dying, so long as the disorder continues latent in the system.

That in persons disposed to gout, many distressing anomalous symptoms of the nature described are happily relieved for a considerable period after a decided fit has taken place in the extremities, is an undoubted fact. Whence the idea so prevalent in Heberden's time, and both before and since, that the gout is a critical discharge of peccant humours; that the gout relieves plethora; that the gouty is a salutary process, and carries off all other diseases. A notion doubtless adopted from frequent observation of fact, but conveying no intelligible or correct pathology, no principle on which the nature of the disease might be explained. Heberden justly exposes the mistaken practice of those, who thus from gout latent in the habit annoyed with uneasy and serious symptoms, and kept in constant misery by daily despondency and midnight horrors, at length fondly cherish the paroxysm in all its severity as the minister of relief. "More pains are taken," says he, "to breed the gout than to find out a remedy. In a beginning failure of the functions of life, they easily persuade themselves, that their complaints are all owing to lurking gout, and that nothing is wanted but a just fit to restore their health; the gout, so far from being blamed as the cause, is looked up to as the expected deliverer from these evils."

In adverting to similar cases, where gout is hailed as a salutary crisis to other disorders, Musgrave has the following expressive, though quaint passage:—

"Est quod ovans exclamès arthriticé

Χάιροις Μακάρων πολυπράοτατή

morbum enim vix ausim appellare. Descendens cœlo te salutat *Diva Arthritis.*"

He then advises the patient to receive the fit with becoming gratitude, and to cherish or promote it by all

means; an advice, the wisdom and utility of which few patients have the sense to discover, and few possessed of any sense would follow.

It is questionless very proper, when gouty action exists strong in the habit, rather to keep it external, than to have it attack an internal part. But to cherish and promote the morbid action, when it has once fairly come out, is repugnant to all common sense, as well as medical experience.

Neither is that procedure so strongly deprecated by Heberden at all admissible, where an enervated invalid struggling with gout within, in the form of nervous distress and hypochondria, betakes himself to a debauch of wine and spirits, to bring out the disorder in a decided external form. This is a kill or cure remedy (I speak not here of gout attacking the stomach, where of course brandy must be poured down as the only chance). But there are those, who having only the gouty disposition very strong upon them, with great internal oppression, but no actual gouty action in any organ, who believing their ailments to arise from suppressed gout, take this method to develop it externally; and they do sometimes succeed pretty effectually, if they do not die in the process. But in bringing out suppressed gout, this is not the way which the safety of the invalid points out.

The true procedure is, rectify the root of the evil, restore the disordered state of the functions, from which, if uncorrected, the gout or worse must ensue; and if this is done with judgment and discretion, there is no need for torturing the feet at all. Although in the process of cure, a fit of external gout sometimes does come on as the precursor of ultimate relief, it is not the cause of the relief, as some people simply believe, neither is it at all salutary. It is merely consequent to, and symptomatic of a more favourable condition of the constitution, produced by medicine or other assignable causes, whereby the morbid action quits the internal parts, and is directed to a part remote from the organs of life. This will be proved by and y,

to the satisfaction of any person who has a mind open to conviction from plain facts.

23. From the great variety of circumstances already described, under which the gouty disposition is acquired, other symptoms too numerous and various to be minutely detailed with any regard to brevity, are experienced by those who have the misfortune to fall into this state; varieties also depend in individual cases on the particular causes that have conspired to engender the diathesis. Rank in life, domestic habits, personal habits, age, climate, original constitution, &c. &c. have each their influence in modifying the symptoms.

In general, amongst the gouty, who inhabit large towns, where the air is confined and impure, nervous symptoms predominate. In the inhabitants of the country, disorders of the circulation are more prominent; the sanguineous diathesis prevails, and gout partakes more of the inflammatory character. In the habitually intemperate and luxurious, and the debauchee, the digestive organs attract the greatest attention. In all cases disturbance in a greater or less degree, in these three important orders of the functions, invariably precedes and attends the gouty diathesis. The symptoms never are confined to one alone, although sometimes more particularly prominent in one than in another, according to circumstances. The causes too, which dispose to gout, are all such in their nature and operation as to affect each of these functions necessarily and directly; and when these causes have been in operation, the symptoms we have described are the natural result. This leads me to treat of the disposing causes of the gout in their operation and effects on the constitution. What these causes are, which engender the gouty tendency, and from a state of soundness and health bring the constitution into such a state of depression and continual liability to suffering, is an inquiry most interesting to every gouty sufferer, and not less so to the pathologist.

Inquiry into the TRUE CAUSES, usually concerned in producing the tendency to GOUT.

Having assumed that there is a peculiarity of constitution, which may be denominated the gouty diathesis, disposition, or tendency; and having noticed in detail the circumstances usually coincident with the origin and progress of the diathesis; and secondly, the symptoms of disordered functions generally attending this state, it remains to inquire what causes induce the gouty state of constitution? How is their influence exerted? What specific effects does each particular cause produce? Several interesting questions arise in this inquiry: as, for example, Are the causes usually blamed for disposing to gout really productive of that disorder? If not, how has the mistake arisen of blaming that which has little or no share in the evil? How have the real causes escaped notice? &c. &c. The first question that occurs is rather a thorny one: we will grapple with it first.

1. *Is gout hereditary?*

If the universality of the belief in the hereditary nature of gout were adopted as a test of the truth of the opinion, we should have little to do but to admit the position. How often do we hear the remark? "That is a gouty family." And again, "No wonder A has the gout, it is the family disorder: his father had it, and all his ancestors." When a young man is seized, "O! he has a hereditary title to the disease;" and so forth.

There is something so unsatisfactory to the pathological inquirer in this hereditary dogma, that we cannot rest on mere popular opinion on the point, which after all is but the echo of the *ipse dixit* of some medical theorist of the day, grounded on gratuitous assumption, aided by partial observation. We shall therefore examine the proofs of

the doctrine, so far as they rest on more authentic grounds, medical authority and extended practical observation.

Here we find discrepancy of opinion, and very opposite facts. That the gout is hereditary, however, seems to have been a very early and prevailing notion, even with sound medical writers; and although some have doubted, and others totally denied the position, the balance of authority is on the whole in favour of the hereditary nature of the disease.

Sydenham, who always claims deference, speaks of those "who receive the ill seeds of this disease from their parents by inheritance." He accounts for boys being seized in early life, from their fathers having had this disease when they begat them.

Heberden expressly says, "Gout is at times derived from gouty ancestors."

Cadogan makes some rational remarks, mixed up with somewhat that is doubtful and fanciful. He takes the opposite view of the disease: he says, "it is *not* hereditary, it is not periodical, it is not incurable." He admits, however, "the father having it, inclines or disposes the son to it; but there must always be joined some active efficient cause, *i. e.* intemperance or mistaken habits of life." Unfortunately, this writer has taken a very limited and imperfect view of these palpable causes, reducing them all to three; so that we gain little by his rejection of the hereditary doctrine.

Cullen decidedly considers gout to be hereditary. *Morbus hereditarius* is his first characteristic. "The gout," says he, "is a hereditary disease, but some persons without hereditary disposition seem to acquire it." Thus implying, that the disease is for the most part hereditary, and only occasionally acquired.

Brown as decidedly argues for the opposite view. "A taint transmitted from parents to their offspring is a tale.

The sons of the rich, who succeed to their father's estate, succeed also to his gout; those who are excluded from the former, are also from the latter, unless they bring it on by their own merit." "If," continues he, "the same person, who from his own fault and improper management, has fallen into the disease, afterwards by a contrary management, and taking good care of himself, both prevents and removes the disease, what then is become of his hereditary taint?" This reasoning it would be difficult to answer.

Dr. Latham takes exactly the same view. "He disputes the doctrine of hereditary gout, believing it no more hereditary than bile, dropsy, ague, itch, and other disorders, which proceed from the same general cause, operating alike on father and son."

Dr. Scudamore appeals to facts, and gives us the following comparative statement:—

" Gout directly in parent and child	264 cases.
Gout indirectly in ancestors or relatives, more	
distant than parents	68
Gout in people, whose relatives were all free ...	190
	—
	522"
	—

This evidence yields no proof that gout is hereditary; the 68 may be fairly added to the 190, the link of connection in parent and child being entirely wanting; we have thus 258 not hereditary, against 264 only supposed so, because parent and child have been seized with the same disorder. But if from these 264 we deduct those cases, where the disease is plainly referrible to indiscretion, excesses, or other palpable causes in the child seized, and if due allowances be made for the similarity of circumstances in which parent and child are so often placed, the instances accountable only on the supposition of heredi-

tary transmission, will dwindle to a very insignificant number.

If, for example, gout were shown to be much influenced by a certain peculiarity of climate (see climate), must it not happen of necessity that people shall be often seized, who stand in the relation of father and son? The idea of its hereditary descent in such cases must be chimerical, and founded only on an accidental coincidence.

Wherever obvious causes can be assigned for this peculiar habit of constitution, we surely ought to be slow in admitting much influence from a source so inscrutable.

Yet Dr. Johnson, the latest writer, is decided that gout *is* hereditary. "There are many," says he, "who seem to inherit this disease from their parents; since their modes of life can have no influence in producing the disease."

To this we reply, that we have not met with very many cases, whose *modes* of life can have *no* influence in disposing them to this disease. Neither would we confine our inquiry merely to the "modes of life," that happen to be pursued by the gouty. We would take a more extended view of the disposing causes of the disease; and if what we have attempted in this way in this treatise be established on the basis of practical observation, it is believed, that the gout of most of those who are seized will receive a satisfactory explanation, without any necessity to "fly to something which we know not of," hereditary transmission; at all events this should be our very last shift. Better it is surely to sit down in an attitude of inquiry, patiently waiting for the light of further experience and observation, than thus be content to have our eyes bedimmed, and all further research frustrated by this dark and indefinable cause of so much torture—a hereditary halo.

Dr. Johnson, however, specifies facts: "A man had eight children prior to being gouty; he then contracted a severe sciatica, during which he became father of a ninth

child, which was the only one in the family ever afflicted with gout; this son was moreover, sober, temperate, and, excepting a sedentary life, was exposed to no other cause of gout."

This our author regards as an "incontestible proof" of the question. We cannot so receive it. In medical science incontestible proofs are not so easily at command. The evidence which would condemn a criminal to death, is entirely insufficient to establish any conclusion on such a point as this. Give us one hundred or five hundred such cases as the above, and we may give in; but one case or a dozen such prove little or nothing; we have only to advance one opposite fact, to neutralize it entirely. A man, the father of a numerous family, had no gout till his fourth or fifth child; his eldest son had gout at twelve, *viz.* a severe sciatica, and at thirty-five was a martyr to the disease; yet he lived a frugal, regular life as a solicitor. Not one of the younger branches born of this gouty father ever had the disease.

We do not on such a fact as this venture to deny the possible reality of hereditary influence; but we do contend that there is, as yet, not sufficient evidence to establish it. We readily go along with our author in another case. "A gouty parent had twin sons, like himself, stout and well made: one lived at home, fell in with his father's tastes and habits, and early exhibited unequivocal symptoms of gout. The other led a life of temperance and activity, and was never afflicted with gout." This is putting the saddle on the right horse.

To decide finally a question, thus embarrassed by conflicting opinions and facts, is like the attempt to unravel the Gordian knot. I apprehend some confusion and looseness in inference has arisen from partial observation and fanciful speculation. Gout has been first assumed to proceed from "a plethora," or from intemperance, or similar causes; and the favourite theory once adopted, every case

irreconcileable with it has been believed or imagined hereditary. This hereditary chimera too is a convenient way of getting rid of the opprobrium of being unable to prevent or cure the disease.

No one contends that gout itself is transmissible from father to son, each decided fit being referrible to certain exciting causes, operating on the individual himself. It is only the gouty peculiarity or tendency that is presumed hereditary, creating a more than usual susceptibility to the disease in the children of the gouty.

The descent of this susceptibility is no more *impossible* than that of the scrophulous, consumptive, or biliary dia-thesis. The former two of which are almost proven hereditary; and so of other constitutional peculiarities. But if I were called upon to admit gout to be hereditary, merely because many sons of the gouty acquire it, on the same grounds might I insist, that gout is derivable from apoplexy; for it is a known fact, that the children of many who have died of apoplexy are seized with gout. On similar grounds too might it be shown, that gout is derivable from every other fatal disorder in the parent, peculiar to the climate or habitat in which he resides; the number of coincidences being, so far as I can collect, in near proportion to the comparative frequency of each individual disease. If gouty disorders universally prevail in any country, where is the wonder that hundreds of children shall be afflicted, whose parents happened also to have it? It is impossible it could be otherwise.

While therefore the doctrine of hereditary gout is in itself so unintelligible, and so feebly supported by facts, we can expect no satisfactory pathological conclusions from any source but from a careful and comprehensive inquiry into other more palpable and cognizable disposing causes of the disorder. No good is to be derived from vague conjectures, and the idle belief that the gouty habit is either inevitable or incurable, because a man's father had

the disease before him. At the same time there can be no harm in the son of gouty parents paying more than usual attention to avoid those causes which may be shown productive of the disease.

2. *What influence has sex over the gouty tendency?*

In endeavouring to answer this, we shall first advert to the state of facts as briefly laid down. (See Obs. 2.)

“Women,” says Sydenham, “are very seldom affected or if they are, not until they are old, or such as are very muscular.” “Thin women liable to gouty affections, receive them from hysterick diseases or rheumatism.”

Cullen says, “Gout rarely attacks females, and then it is only more robust and full habits. It very often happens to such long before the catamenia have ceased. I have found it in those whose menses were more abundant than usual.”

Scudamore says, “Gout of imperfect development is more common in women than in men.”

Johnson says, “Long before the turn of life, anomalous gout is seen in females. Wandering gout is more common after than before the cessation of the menses. Regular gout is rare in females.”

I must remark, that at present, and in this climate, it is far from unusual to meet with regular gout, even of the most acute kind, in females, especially those of masculine and corpulent make, *præcipue in connubiis sterilibus*.

I should be inclined to say, that the gouty diathesis or disposition is just as liable to occur in females as in the male sex, where they are equally exposed to the disposing causes. But when the diathesis exists, they are less subject to regular attacks of gout, plainly because less subjected to the exciting causes. In females, gout occurs more frequently in irregular and anomalous forms than in regular fits, partly from sexual peculiarities, and partly from their habits of life.

We look, however, in vain for any constant connection

betwixt the state of menstruation and the gout. It takes place alike before menstruation, during its period, and after the turn of life when it has ceased. It occurs sometimes when the menses are suppressed ; at others, when deficient or irregular ; and at others, where more copious than natural. In some it occurs long before the turn of life ; in some exactly at, or shortly after, that period ; and in others not till advanced years. There is no uniform rule.

Musgrave is interesting on this : "There is a symptomatic gout which afflicts adult females who are barren, the catamenia being a-wanting or deficient. Such women are of full habit, masculine, sedentary, with grave voice, 'neque semper imberbes.' " He also notices "a gout in young females afflicted with chlorosis, in whom none of the usual causes have operated, whose pale countenances indicate no *plethora*." These he (simply enough) fancies descended of a gouty stock. "It is a wandering irregular gout." The remedies found useful, however, point to some other origin than the "gouty stock ;" "slight purges, tonics, and chalybeates."

Nodes and indurated tumours on the toe and finger joints are frequent in sedentary females. (See Cases.)

I only add farther, that I have a pretty numerous list of cases of regular acute gout in females ; still more of retrocedent gout, and of other irregular forms of the disorder, especially wandering, chronic, and rheumatic gout, a great variety ; and that in general, I have been able to trace the gout of females to the same disposing causes as in the male sex ; but their constitutional temperament and their general habits of life being different, the disorder is thereby modified in its characters.

3. *Has the form of body, its size, or proportions, any influence in disposing to gout ?*

It has been presumed it has, from the observation (3), showing that original vigour and strength of constitution are the most frequent characteristics of those

who fall into gout; and as already observed, before the disorder takes a deep hold on the constitution, a great disposition to corpulency often manifests itself; insomuch indeed, that the invalids about to be seized become full, puffy, swollen out, unwieldy, and oppressed with soft fatness, notwithstanding the most moderate and even abstinent diet. The solid parts acquire a softness, relaxation, and looseness of feel, which is naturally enough taken for plethora. I have one such invalid at present under treatment, who has been most severely tormented with gout upwards of twenty years, and at one time lived almost exclusively on milk for above a year to reduce his habit, but without any permanent benefit; he was nearly nineteen stone weight. Another is about seventeen stone, although very abstemious. In many instances we find it is those tall, athletic, broad-built frames, who have weathered out those youthful excesses, under which one after another of their less robust contemporaries have dropped into the grave, who make sure of gout in their declining years. Constitutions in fact originally powerful, but abused by excesses, or deeply impaired by diseases, the invasions of which they have survived by virtue of their constitutional stamina, when others less vigorous and energetic in frame have sunk under them. It is therefore when the frame has been thus impaired, and has acquired a morbid peculiarity from diseased tendencies of long standing, that the gouty disposition invades such. It comes attended by all the symptoms of impaired vital power. The fulness and apparent corpulency which arises is merely symptomatic of the general debility and depravity of the habit, the absorbent system partaking in the weakness of the functional powers, and the due balance no longer existing betwixt deposition and reabsorption in the cellular texture.

When slender and originally delicate persons are seized, we always find some peculiar advantages existing in their favour, calculated to sustain their constitution under the

impairing causes to which they are subject. Affluence and the comforts of life will preserve many an invalid from a premature grave, leaving him under a long protracted struggle with the gout; whereas, were he poor and necessitous, and exposed to hardships, he would not have survived. So a strong constitution will enable a man to struggle long with impairing causes under the gouty diathesis, when if he had been weak he must have fallen an early sacrifice. This is the true explanation of the size and athletic form of so many whom we find doomed to a gouty old age. It is the large head, capacious chest, and original organic vigour, which has carried them through; and there is no connection whatever between the size, form, and strength of the body, and the gouty tendency, further than this: it is merely a coincidence modifying the influence of the other disposing causes; and this is confirmed by considering the question which follows.

4. *What influence has the period of life in disposing to gout?*

In continuation of Obs. 4 we observe, that the mere advance of years has but little influence over the gouty tendency, unless in conjunction with the other disposing causes. By progressive years, it is true, every constitution is liable to a failure of the nervous and vital energy; and this decline takes place in some much sooner than in others, from original weakness of the powers of life. Where the constitution has had fair play, and has not been abused, and has escaped very serious attacks of disease, the man will retain vigour and strength late in life, comparatively; but where impairing causes have been in operation in any considerable degree, a decay of strength comes on prematurely. Whence we hear of a person worn out by excesses, being old at thirty; another, at thirty-five, forty, and so on. Some men look fresher and stronger at seventy, than others at fifty.

The position is undeniable, that the vigour and health at any given period of life are in the compound ratio of the original constitutional stamina, and the degree of impairment from any given causes. A person originally of moderate vital power, and of delicate frame, may expend his constitutional energies by such excesses as would scarcely affect a more robust constitution. When severe excesses have been undergone and survived, and the gout acquired, we might expect the original mould of the frame to have indicated vigour in no ordinary degree ; and this is usually the fact. When an originally delicate constitution survives severe excesses, or serious attacks of disease, and becomes gouty, we might expect that individual to have enjoyed many advantages in circumstances, and to have been taken great care of ; and this too is often the case.

Some there are, who soon expend their whole stock of vital power. They are said to live fast. Nothing, however, will check them in their career. They shorten their days by their own folly. Even the strongest succeed in this, only they see a host of weaker victims out before them. I recollect being consulted by a *bon vivant* of this description, suffering all the horrors of delirium tremens at the age of thirty-six. He had been a herculean frame. He had not gone to bed a night sober for about ten years. He was so invincible in convivial feats, that he frequently triumphed over two successive parties laid drunk on the floor the same evening, himself nearly sober. One after another of his youthful associates had dropped into an untimely grave, their place supplied in the social circle by new and more youthful aspirants to bacchanalian fame. The hero himself was compelled at length to give way. Obscure attempts at gout were for some time perceptible ; many indications of the diathesis existed : but the disorder at length fixed in the brain, and after hopeless delirium of some months, insanity succeeded.

Where prudence takes warning on the first symptoms of

decline of the powers from intemperance or excesses, the individual may have just gone far enough to subject himself to a smart attack or two of gout before or about thirty; and is not again troubled for years to come, or perhaps during a long life. In instances of this kind, five, ten, or more years elapse after a first attack, before the disorder returns. In such cases it is curious to remark, that it is always owing to some change of habits or of treatment, or of circumstances in life, tending favourably to counteract premature infirmity and decay of the nervous power, that the gout is warded off so long. Again, when gout comes out on the extremities, as a consequence of some more serious internal disorder previously existing, we shall generally be able to discover some coincident favourable change in the circumstances of the individual, by which the morbid action is expelled to the extremities in this form. Whence the explanation of the fact, that gout coming on after other disorders, paves the way for recovery and better health.

To say, as is commonly believed, that "gout cures other disorders," is foolish. Favourable causes renovate the strength, or restore the equilibrium of the circulation, and the disorder pre-existing, takes the gouty form in the process of recovery.

When the gout is once deeply fixed in the habit, we find the advance of age produce a rapid change in the constitutional energies. Whence, year after year, the disorder takes a more severe and complicated form; while the powers, progressively lowering, are less and less able to resist the morbid action, and to regain any regular and healthy intervals. The ultimate termination of such cases is sometimes very suddenly fatal: apoplexy, paralysis, gout in the stomach, &c. &c., are the usual result. There are, on the other hand, cases quite the opposite, where the gout has made sad havock on the frame for years at the meridian and decline of life; thirty to fifty, or so: and after this, unaccountably leaves its victim to the enjoyment of

health and comfort as old age steals on. This calm sometimes is enjoyed for a long series of years, and the individual may well congratulate himself on his happy peculiarity. But the respite is in many cases treacherous and delusive; for while the person fondly fancies that his inveterate foe is completely expelled, his delusive triumph is suddenly checked by one much more formidable—an apoplectic fit. These cases, so opposite to each other, are not difficultly reconcileable by carefully adverting to the other coincident influences by which the invalid is affected.

The position is unquestionable, that the failure of nervous and vital power inseparable from the progressive advance of years does assist in creating the gouty disposition, and aggravates the diathesis when formed; but only in conjunction with other disposing causes. Years add materially to the effects of youthful excesses, and every other impairing influence; these on the other hand hasten the infirmities of age.

To the invalid, who from assignable causes feels the infirmities of years prematurely growing upon him, we would merely say, that unless he adopts a complete change in due time, there is no very agreeable prospect before him. When the constitution is once broken down in vigour and health, undermined in its nervous energies, the very basis of the functions of life, year after year makes sure and rapid inroads. In the long and gloomy catalogue of evils, gout, although perhaps the most distressing to endure, is far from being the most formidable. Gouty old age is often long protracted, under adequate care. When that care which is necessary is not bestowed, however, the event is much more speedy. Gout, if not eradicated, is ever ready to make shipwreck of the constitution, unless continually counteracted by measures adapted to the peculiarities of the invalid. It is some consolation if it could be shown that the disorder could be eradicated by such

measures as a correct knowledge of its causes suggest; and this I believe is the only effectual method of treatment. People may propose specifics, and fondly fly to potent remedies for immediate relief; but an instantaneous or speedy cure is absurd in idea, and inconsistent with every sound view of the nature of the disease; and therefore have remedies with this intent been so often unsuccessful or dangerous in their operation. Is it reasonable to suppose, that a disorder which has been gradually forming through a long series of years, as the gouty tendency always is, is to be eradicated in a day, or a week, or months? No: if it is to be cured, it must be by the same slow and gradual process in which it was acquired. The invalid must just retrace his steps back through a long series of former transgressions, by a persevering self-denial, and correction of long-formed habits; and if he has but the patience, success is for the most part sure. This is a great deal to say; and may look like over-confidence, seeing cures have been so often promised, so very seldom realized. I have only to request of my reader to examine the grounds on which the position is founded. It is not advanced on the idle faith in any secret specific; not on the efficacy of any individual remedy whatever. It is founded solely on a just view of the causes of the disease, which can generally be removed, and that easily; on a correct knowledge of that constitutional peculiarity which these causes have created—*the gouty diathesis*; and this unquestionably is often of such a nature as may be *restored*. Proof of this will be amply furnished by cases hereafter.

5. *Venereal indiscretions in youth pave the way for a gouty old age.*

On this error, as a cause of gout, medical observers from the earliest ages till the present are with slight exceptions agreed. In Grecian verse, often quoted, Gout was celebrated as the daughter of Bacchus and Venus:—

Λυσιμελες Βακχες και λυσιμελης Αφροδιτης
Γεννασαι θυγατηρ, λυσιμελης Ποδαγρα.

“ Ut venus enervat vires sic copia vini
Et tentat gressus debilitatque pedes.”

Sydenham says, “ premature venery causes gout to occur early in life.” Cullen, regards “ excesses in this as a predisposing cause.” So does Dr. Parry. On the other hand, Brown “ excepts this hurtful cause, though he admits that gouty persons are much addicted thereto.” Scudamore too thinks “ sensuality little or only indirectly concerned in promoting the gouty habit.” Compared with the mass of authority on the other side, these slight differences have but little weight; indeed if we inquire into the state of facts we find, that those who are oftenest subject to gout are those, who, from affluence and other opportunities, have been in their youth particularly exposed to such temptations. To press inquiry further is useless; medical men are not father confessors; and although it is important to learn always how stands the fact, yet it may be very safely left to each individual’s own experience how far he has his imprudence to blame for his sufferings.

I am far from asserting that this particular error is always concerned. It would not be difficult to adduce examples of gout among those who are strict; and especially among those who at one time were imprudent, but have recently held a tight rein on the passions. Still we must not shut our eyes on the fact, that almost every sound writer on gout, from Hippocrates downwards, coincides, 1. That premature decline of nervous power is the result of such excesses; and, 2. That imprudence in this matter is frequently admitted to have been practised in early life, by those who afterwards acquire the gouty diathesis. The conclusion is fair, under such circumstances, that when Cytherean indulgences are carried the length of enervating or enfeebling the constitution, they directly and strongly assist in creating the gouty tendency.

Let us therefore examine more particularly the mode of operation, and the effects of such excesses on the constitution.

All nervous excitement in extreme is followed by subsequent nervous collapse and depression; frequent repetition of excitement at length produces exhaustion, and this from whatever cause the excitement proceeds. In cases of this indiscretion, there is an artificial irritability of the frame acquired, which sometimes leads to the indulgence of the propensity, when the constitution from absolute exhaustion is no longer able to sustain the animal excitement. Continence then becomes a step of imperious necessity, however difficult to practise.

A sudden change of habits in this matter necessarily causes a revolution in the whole condition and actions of the frame, and is often followed by serious consequences.

The cerebral power being exhausted, and the nervous system rendered morbidly irritable, the whole functions are performed irregularly and imperfectly.

1. This is especially apparent in a diminished tone of the stomach; when the stomach is thus weakened in nervous power, all aliments, even those otherwise wholesome, produce morbid impressions on its coats, which are communicated by sympathy to the other parts of the frame; whence the usual symptoms of indigestion, when occurring in such habits, occasion a train of nervous symptoms.

2. A habitual organic excitement being suspended, connected with a local determination of arterial blood, while at the same time the nervous susceptibility is increased, the excitement is transferred to any other point where irritation or stimulation may operate, conveying thither also an arterial impetus of blood. Whence the tendency to irritative sensibility and local morbid actions in such debilitated frames.

3. The circulating power and actions generally partake in the weakness and irritability of the nervous system.

4. The heat of the body is also easily disturbed in its regular distribution and extrication. Hence the impressions of cold and damp are much more sensibly felt by people so weakened.

5. The nervous sensibility is also diminished in its sum, at the same time more easily excited by local irritations; and thus continually subject to disturbance of that regular and equable energy requisite for the due performance of the functions of life.

Such being the conditions of the irritable enervated constitution, the slightest causes in this state disturb the healthy equilibrium of the functions. Two classes of natural causes are continually in operation on every constitution to produce this disturbance. These are, 1. Causes operating through the medium of the stomach and alimentary canal, in form of diet, either indigestible and unsuitable, or rendered so by the weakened tone of the organs and the morbid state of the secretions. 2. Causes affecting the surface of the body, *i. e.* climate, heat, cold, moisture, and continual vicissitudes; take also exercise and rest as continually affecting the local sensibility and circulation, and you can without difficulty account for the frequent occurrence of disordered functions in the enervated susceptible frame.

As an example, the following mode of operation is the most usual.

In the colder and wet months of the year, the skin and extremities are continually exposed to causes repelling the circulation from the external parts to the internal organs in excess; while the stomach and alimentary canal are by continual necessity exposed to causes attracting to themselves the circulation. For the stimulus of food, in exciting the organs of digestion, causes an afflux of blood and nervous

influence thither, to furnish the requisite secretion at the moment of need. At the same time, from the weakened state of the organs, and consequently imperfect digestion, abundant irritations are constantly generated, by which the stomach and alimentary canal are involved in irritative spasms; and thus the free current of the circulation, directed thither in excess, is impeded. The consequence is habitual vascular congestion, and a morbid sensibility of the organs; their peristaltic and evacuating functions cease; and the accumulation of depraved secretions and excrementitious matters adds to the irritation.

The individual thus goes on exposed to cold or wet, accidentally or from negligence. The feet feel constantly cold, the skin dry and chilly, the stomach tender on pressure, the bowels costive; there is a sense of tightness across the liver, fulness in the stomach, and choking in the throat; confusion, giddiness, and oppression about the head, and many unpleasant nervous symptoms. The tongue is coated, the stomach does not digest well, bilious symptoms show themselves, the sleep is bad, noises in the ears, startings, flushing of the face, and in short every symptom of determination of blood to the head. When indeed the circulation is repelled from the surface and extremities, and when the bowels are obstructed, as above described; the head, from its anatomical relations, is peculiarly subject to partake in the congestive condition, and thus it is that the identical determination to the head and alimentary canal, noticed by Parry as connected with the nervous symptoms preceding the gouty habit, ensues upon venereal indiscretions, and exposures to a cold, wet, changeable climate, as a *natural* consequence.

It is an interesting practical observation, in illustration of these views, that when the nervous system has been exhausted and rendered morbidly irritable by venery, debauchery, and other impairing causes, we often find the liability much increased to disorders of the circulation,

and especially a disposition to local determinations of blood to different organs of a congestive character eventually, under given circumstances, terminating in gout. These disorders of the circulation, proceeding from an irritable and weakened state of the nervous system, do not usually pass into the gouty peculiarity till after the fire of youthful passion has begun to subside somewhat, and the monitions of prudence, or the experience of the evils of excess, have led to a change of habits. This is generally coincident with the period when the arterial irritability natural to youth is changing into that plenitude and development of the venous circulation, characteristic of maturity. Then also do acute inflammations pass into disorders of venous congestion, and the inflammatory diathesis merges in the nervous;—a change which occurs betwixt the thirtieth and forty-fifth years of life; whence the frequency of first attacks of gout at this age. Cases shall hereafter be adduced of individuals, who have exemplified this process in a remarkable manner.

Through a similar course of previous disorder, with slight variations, there are hundreds to be found who ultimately fall into the gouty habit. The root of the evil is to be traced back to the remote causes—premature or excessive venery. And that this often lays a foundation for the gouty diathesis in after life, is, I am firmly persuaded, supported by stronger evidence of a pathological nature than is admitted or supposed; *i. e.* under given circumstances; for this is not averred to be either invariably essential to, nor yet the sole origin of the gouty tendency. Neither is gout the result of such indiscretion in all circumstances; since the constitutional enervation, which every pathologist admits to ensue from this error, may be often so modified by other habits, as to terminate in disorders of a quite different character from the gout. In France, Spain, Italy, Turkey, &c. and other subtropical climates, we believe such errors are practised to a greater degree, per-

haps, than in this country ; yet gout is comparatively much less frequent than in England. We account for this, partly from the different manner of life adopted by the inhabitants, but chiefly from the peculiarities of an English climate. (See *climate*.) More of the gout of the English is due to the climate than is believed at present. And we hesitate not to advance the position, and submit it to the test of the most rigid inquiry, that in connection with the continual influences on the constitution of a cold, damp, and changeable climate, exhaustion of the cerebral energy by excesses in this matter is the true remote cause of the gouty diathesis in many instances. Errors in diet undoubtedly assist. Disorder of the circulation generally succeeds, an obstructed state of the liver and alimentary canal, and determination of blood to the head, with nervous symptoms, follow in the train, and then the gout is close at hand. *See Cases.*

Venereal excesses therefore lay the basis of the gouty habit—

1. By enervating the frame generally, impairing or wasting the energy of the brain and nervous system.
2. By inducing nervous atony of stomach, and an imperfect functional power of the whole alimentary canal.
3. By producing inordinate irritability of the circulating system, and an increased susceptibility to impressions of cold or damp, and other causes calculated to disturb the regular and healthy distribution of the blood and the actions of the vascular system, thus creating derangement of those organs to which the blood is directed in excess, especially the alimentary canal and head.
4. These effects do not generally result from this cause alone, nor immediately ; but arise in the progress of advancing years, and are accelerated materially by other influences of an enervating or depressing tendency ; especially a moist sedative climate, errors in diet, &c. &c. and obstruction of the liver.

6. *Sedentary habits and indolence unquestionably lend their share in creating a gouty disposition.*

Most writers have remarked, how often indolent habits are pursued by those who fall into the gout. And although exceptions do sometimes occur of a very striking nature, wherein very active people are seized, yet it is generally after they adopt a sedentary life. With advancing years indeed, the inducements to inactivity gain strength with most people: and it must be confessed, that the access of gout is usually at that period in the history of the invalid, when from age, professional occupations, infirmity, sloth, &c. &c., indolent habits have been contracted. Winter, and wet weather, more frequently usher in gout than such a state of atmosphere as invites daily exercise; and even the affluence which dispenses with the necessity for corporeal exertions, has been blamed for entailing gout as the price of ease.

The inference suggested by such observations, that indolence is a most influential disposing cause of gout, is supported by strong medical testimony.

“ The gout,” says Sydenham, “ most commonly seizes such old men as have lived the best part of their time tenderly; and by reason of *the sloth* that attends old age, have *quite omitted such exercises* as young men are wont to use.”

Cadogan goes so far as to regard *indolence* as one of the three main causes of gout. Cullen reckons “ a sedentary indolent life, with full diet of animal food;” and is persuaded, that “ whosoever in early life pursues constant labour, and abstains from animal food, will entirely escape the disease.” This, however true, is but a contracted view of the case. Those who labour hard and live low, if exposed to some of the causes of gout, would only escape that disease by getting under the turf.

"As indolence," says Brown, "helps on the first fit, so fatigue, especially walking, hurries on all future ones." Parry and Johnson notice "indolence, especially if it succeed an active life." "Indolence," says Dr. Scudamore, "assists the predisposition to gout. It promotes the tendency of a full diet to produce plethora, by restraining the excreting functions, and prevents that due expenditure and regular distribution of the nervous energy, which the healthy action of the brain and the several secreting organs demand." An observation clearly and well expressed.

After so many concurrent authorities, one should think the point settled. But facts are always more satisfactory than authority; and the facts which appear to militate against the above opinions are rather strong. Females, who of all others are the most confined and sedentary, are not at all in proportion subject to gout.

In former times, when wealth was more than now confined to those idle and fashionable classes, who drew their resources from landed estates, and other sources requiring no active labour, the gout to which these classes were so peculiarly subject was referred to their indolent habits. Hence the gout was styled the disease of the rich, who alone could afford to be indolent.

Now, however, in the progress of commercial and manufacturing pursuits, thousands and tens of thousands, rich as well as poor, spend their lives sedentarily, or, what is worse than indolent affluence, in inactivity of body, and harassing anxiety of mind, without any gout ensuing. In London, Liverpool, Manchester, &c. &c. how many thousand such are there to whom gout is unknown? Many of these it is true are sober, temperate, and abstemious, even to half-starving, because too poor to live better. But there are also numbers directly the reverse, given to intemperance and full living, and pursuing systematic debauchery at their leisure hours; yet they also escape gout. Whereas the idle and the affluent, who are without care, without

anxiety, without restraint, at liberty to move about from one fashionable resort to another; enjoying daily exercise, and all the advantages which money can command — these are they who are surely destined for a gouty old age. Not a few of such are seized, who neither from indolence or intemperance have ever deserved it; in fact, the very poorest and most abstemious at times contract the disorder, as well as the gourmand. Such are the not unfrequent cases which have given origin to the terms poor gout, hereditary gout, and such other designations as have no other meaning but to cloak ignorance.

Taking these facts into account, we are plainly compelled to lay the chief stress on the other causes of gout; and although we must admit a certain influence to indolence in contributing to form a gouty disposition, this is rather occasional and secondary than of primary importance. It is far otherwise when the gouty habit has been already acquired. Then indolence undoubtedly is most unfavourable to the restoration of the habit, and the advantages derivable from exercise of the last importance.

In order to set this point in a clear light, it may be well to ascertain, on physiological principles, in what manner indolence assists in promoting the gouty habit, or in maintaining it when acquired.

Exercise, or locomotion, is a natural and salutary stimulus to nervous energy, and to the vital actions generally over the system. It aids the extrication of due animal heat, distributes the blood regularly over the frame, exciting the vascular activity to the remotest extremities; and it promotes the various secretions. It assists those changes which the blood undergoes in perambulating the frame, strengthens the muscular system, gives equable tone and sensibility to the nerves, and maintains the functions of the whole organs and textures of the body in a state of due activity.

Indolence just induces the opposite states. The nerv-

ous system falls into quiescence and torpor, the circulation is languid, the heat of the body fails, the blood imperfectly pervades to the surface and extremities, and is thrown in excess on the internal parts; the secreting actions are deficient. In short, the whole functions are subject to inactivity and irregularity, and the powers of the body languish for want of excitement. Take a man in this state, and expose him to any of the other disposing causes of gout, and they produce their effects in a much greater degree than on the man who takes active exercise.

Let the brain, for instance, be kept in constant excitement by hard study, anxiety, or want of sleep, its energies are not only exhausted thereby, but it becomes a centre of stimulation and of arterial activity, and its vessels at length become habitually overcharged with circulation; it acquires a morbid sensibility to every impression. And thus it is the hard student soon emaciates, gets nervous, subject to swimmings in the head, &c. &c., if he omits regular exercise. His bowels also get costive, the bile is obstructed, the body is cold and languid, the extremities numb, the circulation forsakes the exterior and oppresses the internal functions; whence palpitations, sighings, nightmare, low spirits, confusion of mind, &c. &c.

Such a man is perpetually shivering with cold, he is the continual sport of the wind and the weather; and on those occasional exposures, which in ordinary life are unavoidable, then the circulation is disturbed, and inflammatory and congestive attacks are the order of the day. Seldom a winter returns without some such seizure; and that which in sounder and active days would only have occasioned a slight cold, may now confine him for weeks under inflammation; whence bleeding and starving, and other means to rectify the disorder of the circulation, such as at the same time effectually take away the strength of the constitution, and reduce the unhappy man to the lowest ebb of life. His nerves are shattered, he has no blood, and no

strength; and yet somehow or other, before a few months pass by, he is just where he was again, attacked by a severe inflammation; and then bleeding, and the whole process of enervation must be repeated; and the broken constitution is thenceforth subject to more serious maladies than ever on subsequent exposures to the atmosphere.

We have mentioned costiveness as the attendant on studious and sedentary habits. This is often indicative of a very disordered condition of the whole alimentary canal, which is slowly engendered and constantly kept up by this same indolence. And thus it is: in the quiescent and torpid state of the body, all local irritations produce a more decided impression on the parts where applied, and by causing an irritative sensibility, and a morbid local action, create at length a disturbance of the most important functions of the body.

Thus irritating and indigestible food, acid at stomach, obstructed bile, and retained faecal matter, excite and maintain constantly an irritative and spasmodic contraction of the fibres and coats of the alimentary canal: an unnatural sensibility of the mucous membrane of the canal is created, a congestive state of the visceral circulation, and then the general nervous system and the general circulation come to be affected by the local irritation. Whence palpitations at the heart, throbings in the head, unconquerable drowsiness, headache, and nervous symptoms in endless variety. We have in fact that very condition so often noticed, of determination of blood to the alimentary canal and head, and we have many serious remote consequences ensuing therefrom.

It thus appears, how by physiological necessity those very derangements which characterize the gouty diathesis proceed from sluggish inactive habits, when aided by other coincident influences.

Need we illustrate this by reference to fact? Is it not proverbial that sedentary people are invariably sub-

ject to become irritable in the nervous system, to acquire the *nervous* temperament, to be "*nervous?*" Also are they not continually subject to great languor of the circulation, to imperfect heat and circulation in the extremities? Are they not constantly chilly and lounging about the fire, and shrinking from the blast, and scarcely venturing out of doors all winter without being laid up with a severe cold, rheumatism, or inflammation? Are not their feet constantly cold, and numb, and torpid? And with respect to never-failing indigestion, costiveness, and bile—it is the sedentary who in a peculiar degree may claim these evils as their own.

As exercise therefore strengthens the body, and labour renders it robust and hardy, so sedentary confinement weakens and renders it delicate; and it is thus subject to feel every other disordering influence in an increased degree. As exercise circulates the blood and heat, inactivity causes deficiency of heat, imperfect circulation, irregular distribution of the blood, and thus paves the way for organic disorders.

As exercise and pure air promote digestion, so those who are confined in impure air are subject to the worst forms of imperfect and disordered digestion; and thus may be said to acquire the gouty habit.

It may be asked, do I not admit any influence to the plethora consequent to sedentary habits and full living?

Occasionally doubtless these two errors go hand in hand, and plethora results; but in explaining the pathology of gout, I believe the effects of indolence and other causes as above described are a sufficient and satisfactory source of the diathesis, without any necessity for adopting the plethoric doctrine at all. The gouty habit under such circumstances will occur in the non-plethoric as well as the plethoric; and therefore plethora is merely an occasional and incidental coincident, not certainly an essential to the disease.

7. Impure air.

Habitual confinement to impure air assists in promoting the gouty habit, and aggravates the diathesis when already existing.

That breathing an impure air impairs the healthy energy of the brain is plain from Bichat's curious observation, that venous blood in contact with the brain destroys its vitality. Disordered respiration, or impure atmosphere, are the usual modes in which imperfectly arterialized blood can reach the brain in life; and when this takes place, the whole system indicates deficiency of nervous energy. "Of all debilities," says Broussais, "the most essential and the most direct is that produced by want of respirable air. Oxygen is the most necessary aliment of life. Those who inhale air deprived of it make vain efforts to breathe, experience much anguish, the blood ceases to become red, heat is lost, the chest ceases to move, the heart is still, and all signs of life cease." This extreme seldom happens, it is true: but in the close confined air of great towns, how many slowly languish by privation of pure air!

What are the direct effects?

The blood sent to the brain by the carotids being imperfectly purified, the energy of that organ immediately fails, and the whole functions of the body necessarily partake in the effect.

1. The nervous system becomes weak and irritable.
2. The power of the circulation is impaired, the vascular actions are languid, and the equable distribution of the blood disturbed by the slightest causes.
3. The temperature of the body is much reduced.
4. The stomach, the liver, and the alimentary canal partake in the weakness and torpor of the frame, whence a disturbed and obstructed condition of the digestive functions from very slight causes.

5. A tendency to spasmodic and irritative action in the muscular and membranous textures is induced.

These effects are strikingly exemplified in daily experience, by the symptoms of confusion about the head, numbness, giddiness or headache; nervous irritability; chilliness; susceptibility to cold and damp; cold feet; tenderness at the pit of the stomach; asthmatic oppression at chest; palpitations of the heart; throbings in the temples; swimming in the head, and other marks of disordered circulation: also by flatulency, loss of appetite, oppression after eating, sense of fulness and tightness, acid at stomach, biliary headaches, costive bowels, and other dyspeptic symptoms; also by spasms of the chest, of the stomach and bowels; cramps in the limbs, and involuntary startings and twitchings; disturbed sleep, nightmare, and such other symptoms usually denominated nervous, to which the inhabitants of great towns are so remarkably liable; all of which distressing symptoms are, as by an universal opiate, converted into energy, tranquillity, and health, on a short residence in the country under exercise and pure air: thus showing distinctly their origin to have been the inadequacy of the air inspired to purify the blood, and to support that energy of the brain necessary to the health of the body.

If I am asked why I rank impure air among the disposing causes of gout? I reply, every symptom we have been describing is familiar to gouty invalids in a peculiar degree; and wherever the other enervating causes which dispose to gout are in operation on the constitution, there we find the individual feel much more severely and immediately the distressing effects of an impure atmosphere. To exemplify: those who have wasted the powers of their constitution by excessive sensuality, much sooner feel the effects of confinement to impure air than others. Persons subject to determination of blood to the head, as most of

the gouty are previous to acquiring the malady, suffer greatly from this cause; as for instance, from sleeping in an ill-ventilated bed-room. Then nervous startings, universal anxiety and oppression, with entire sleeplessness, or broken slumbers and horrid dreams of suffocation ensue, and night-mare hovers perpetually over the couch. Persons also subject to asthmatic affections and pulmonary disorders, as many gouty invalids are, suffer in a remarkable degree from confined air. Those too who have been subject to disorders of the circulation, and who have been frequently bled or cupped, become remarkably nervous and subject to cold spasms, &c. from confined air. So the dyspeptic, the bilious, the sedentary, and the studious, &c. &c., without exception — these have learned by sad experience what it is to pine in airless chambers; and full well they know the exhilaration and enjoyment derived from removal to the country.

When from any or all of these causes the gout has actually made his invasion, when the gouty diathesis is possessed, the invalid comes to recognize more severely than ever formerly the injurious effects of a confined and tainted air. It is curious to observe, that his liability to attacks of gout increases in proportion to the degree of confinement and the insalubrity of the air the invalid is compelled to breathe. Nervous depression and irritability are progressive, and the sensibility to changes of the weather at length becomes so delicate, after a protracted confinement, that the slightest current of cool air produces chilliness, rheumatic aches and wandering gnawing pains: and every irritation, mental or bodily, gains an unusual ascendancy over the tranquillity and comfort. In the never-failing disorder of the digestive organs, visceral irritations from bile, acidity, indigestible food, &c. are a perpetual source of depression and uneasiness. The invalid becomes what is called a confirmed hypochondriac, and at length the gout assumes its worst and most com-

plicated forms, barring every enjoyment, and reducing him to a helplessness and torture, which embitter life, and hasten the approach of death.

Of impure air therefore it may be said, that in proportion as the body is weakened by any causes exhausting, disordering, or oppressing the powers and functions of the brain ; as sensuality, debauchery, indolence, cerebral congestion, anxiety, hard thinking, wakefulness, &c. &c. ; in like manner when the circulation is disturbed in its healthy equilibrium, so as to affect with congestion any of the important internal organs ; as also when the stomach and alimentary canal are deranged in their functions ; so is the power of maintaining a duly arterialized state of the blood in a tainted atmosphere diminished. And by every degree in which the nervous energy is reduced by want of respirable air, so do these other depressing and disordering influences gain a greater ascendancy over the powers and functions of life ; and in the same ratio does the susceptibility to be affected by the exciting causes of gout increase.

It may be objected, that the gouty habit is frequently acquired in the country, where of course impure air is not concerned. Admitted : but in these cases we generally find some of the other disposing causes to have operated in a peculiar degree, and the gouty tendency to have arisen in despite of the advantages of a pure air. To prove this, transport the gouty invalid accustomed to reside in the country to a confined part of London. Many such have assured me from actual trials, that they cannot live in London at all. They get nervous, depressed, and despondent, and gradually acquire such unaccountable and distressing symptoms of continual ill health, that feeling themselves lose ground daily, and unable to engage in any active pursuits, or to enjoy any comfort, they gladly sacrifice every consideration in order to resume their former rustic life.

There are numbers of the gouty in particular classes of society, who must reside a certain part of the year in some given town residence, in obedience to fashion, to enjoy the society of their friends and associates, or for business pursuits; and they annually follow the practice, whatever be the consequences. These, if we trace them through a winter's residence in town, are sure to be overtaken with repeated severe and protracted attacks of their malady, coupled with great constitutional depression, hypochondria in all its shapes; and at length, enervated by long confinement, and exhausted by loss of appetite, want of sleep, and continued suffering, with difficulty reach a watering place at the close of the season, where they may recruit their lost energy, and lay in a stock of vigour and health, which they hope shall enable them to bear through the fashionable campaign of the next season. Thus hundreds of gouty invalids contrive to weather it out from year to year, in short-lived intervals of impunity and fancied recovery in the country, and a certain relapse to debility and suffering on wintering in town. The attacks of gout, winter after winter, become as years steal on more severe, more protracted, and more pregnant with dangerous symptoms; and at the close of each season those who survive can look back and enumerate from amongst their acquaintances, a long list of fellow-sufferers, whom a sudden stroke of apoplexy, or palsy, or some other truly alarming form of retrocedent gout, has released from their troubles. Death makes sad havoc among broken, impaired gouty constitutions ere the genial advance of summer brings relief to the anxious expectant, confined as a close prisoner in his air-tight apartments. These reiterated and impressive warnings however pass on unheeded by the survivors. The invalid seldom permits himself to fear any immediate danger to himself; he perceives not the insidious sources from which it is to be apprehended. He spends his summer in the country in quest of health, and not without benefit to his

shattered frame. Autumn, however, paces on, and at length the weather becomes wet, cold, and broken. Those gloomy forebodings, which prey so heavily on his spirits on the approach of November, do not deter him from paying his annual visit to town. The inclemency of the weather and the long dark evenings render a country life dulness itself. There is no place like London for society. At any rate by the commencement of the season, he must be at his post. Thither therefore he repairs, and takes up his abode in some airless street, house, and bed-chamber, merely because of its convenience. The importance of pure air never enters into his calculations. By and by he is seized with the gout as usual ; and, after torture and confinement of more than usual severity and duration, and many fruitless consultations, and a trial of all known remedies to no purpose, at length the unhappy invalid, worn out to the last dregs of life, sinks in the struggle—a warning to others, as others had been to him : but only to be regarded with a sigh, transmitted to the tomb, and then as speedily as may be banished from the thoughts.

Such an one dies comparatively a young man, perhaps somewhere betwixt 50 and 60 : others, however, reach a later year. Among the causes most injurious to his health, and productive of this premature decay, may unquestionably be reckoned his annual recourse to a confined, airless town residence during the winter. This was an effectual bar to his ever regaining that vigour, which might enable him to throw off his tendency to gout. Being subjected to a state of half-suffocation all the winter, how could he expect to resist the exciting causes of the disease. As the fits thus returned upon him, his strength was progressively declining, years advancing upon him, and more confinement necessary now than ever. His care and attention to his habit by no means increasing in the same proportion, and unavailing because blindly and unskilfully adapted to his case : his own prejudices, and predilections, and pre-

conceived notions for ever regulating his procedure ; and perhaps addicted to quack himself with colchicum, and such other drugs as might create transient relief, but irreparable injury to his constitution :—how then could he escape a rapid decline of his powers ? Had he considered the physiology of respiration, and the paramount importance of a pure atmosphere, he would have taken care at least to secure this invaluable advantage at any expense ; and combining all the other measures adapted to his particular case, it is not too much to say, that his impaired constitution might have been maintained in tolerable vigour and health to a much later term of existence. There are numbers of gouty constitutions, to whom the purity of the air in which they reside is of such consequence, as to make all the difference between a long life and a short one.

I am aware there are gouty invalids, who are sensible of no inconvenience from removal to a town residence. These are only apparent, not real exceptions. How often when they suppose themselves, and seem to their friends to be in perfect health, are they seized unexpectedly with apoplexy or paralysis, which perhaps is the first warning that the system has been all the while gradually though surely undermining in its energies, at length arriving at this fatal crisis.

It is also not uncommon for gouty invalids to be seized with a fit immediately after arriving at some watering place, especially on the east coast, whither they migrate for the benefit of health. I recollect about eight or nine of such patients from London seized nearly at the same time at the sea side. A superficial observer is apt to attribute this to some mysterious effect of change of air, and foolishly conclude that residence in town is more beneficial. Under such mistaken notions I have known gouty invalids, after being exhausted by repeated attacks in town, experience a more violent fit than ever on first arriving at the sea-side, and immediately take fright and return to town,

vainly expecting recovery. But in doing so he carries the disease along with him to a situation the most unfavourable to enable his constitution to cope with it—a warm, relaxing, tainted town atmosphere in summer—what could be worse? Accordingly, as he loses in strength the disorder gains a deeper hold, and at length assumes the very worst characters.

I could fill a volume with cases, proving to a demonstration how hurtful impure confined air is to the gouty habit when acquired, and how directly it tends to hasten the disposition along with other causes.

8. *Errors in dress dispose to gout.*

Laying so much to the account of climate in creating the disposition to gout, it is impossible to overlook the important subject of dress; and it only requires to consider its adaptation to the physiological necessities of the human body to perceive how errors in this respect may contribute in no small degree to the gouty diathesis.

Dress prevents the undue abstraction of the animal heat from the surface of the body, and it excludes the impressions of cold and moisture. If dress is too warm and thick, the animal heat is kept up in excess, the skin is over-stimulated, the internal organs are oppressed: fever, exhaustion, and debility ensue. If dress is too light and cool for the state of the weather or the delicacy of the constitution, the skin, deprived of due heat to support its nervous sensibility, is struck torpid by every exposure to cold and damp. This effect is communicated by direct sympathy to the internal organs. Along with a universally sedative influence affecting the nervous system, the circulating actions are also repressed; the mass of blood is repelled from the surface and extremities; the internal organs are subjected to a congestive condition of their vessels, and thence a disordered and obstructed state of their functions. The organs most liable to suffer in this

way are the alimentary canal, the hepatic system, and the head. One obvious reason for this is the coincidence of gastric irritation and indigestible food, whereby the stomach and alimentary tube become the seat of functional disturbance, involving the liver, and ultimately the head. More of the indigestion, costiveness, biliary disorders, and determinations of blood to the head, so incident to the people of England, are referrible to carelessness and insufficiency in adapting the dress to the state of the constitution, and to the peculiarities of an ever-moist and ever-changeable atmosphere, than will readily be believed by those who do not inquire closely into the subject. Every one is prepared to attribute pulmonary disorders to this cause, and inflammatory attacks are in most cases to be traced to some exposure insufficiently protected. But those insidious chronic affections of the stomach, the liver, the alimentary canal, and the head, occur in such various and complicated forms as to perplex and often totally mislead the inquirer from recognizing their true origin.

Every thing, in the present day, is ascribed to diet; as if errors in diet were the sole and continual source of every malady. One class of speculators are sure always to find out that their patients eat one half too much; another that they poison themselves by the variety and the improper quality of what they eat; and both undoubtedly are sometimes right: but between the one and the other the poor patient has but little chance; he has only to choose betwixt precepts of starvation and of the most rigid simplicity and self-denial of all that is pleasing to the palate.

If a little more attention were paid to the effects of atmospherical impressions on the internal organs, communicated through the medium of the surface and extremities from imperfect and injudicious clothing, I am convinced that much greater latitude, both in the quantity and the quality of diet, might be allowed to dyspeptic invalids, not only without risk of injury, but with positive benefit.

It is when the constitution has been impaired by the causes discussed in this treatise, that the susceptibility of the body to cold and moisture becomes so delicate—that the stomach, the liver, and the alimentary canal, intimately and directly sympathize with every impression on the surface and extremities. Sedentary habits, confinement to impure air, sensuality in excess, exhaustion of the powers from any cause, wakefulness, hard study, in particular frequent bleedings and low diet—all these render the constitution entirely unable to withstand the constant and sudden changes of the weather without serious disturbance of the internal functions. Gastric irritation and indigestible diet doubtless contribute their share; for when the bowels are permitted to remain costive, and indigestible food is oppressing and irritating the alimentary canal, the skin is affected by reflex sympathy with these viscera; it is dry, torpid, chilly, and its susceptibility to impressions of cold and wet is much increased.

Nothing disorders the stomach so directly and immediately as cold or wet feet; and nothing occasions a coldness, torpor, and numbness of the feet so effectually as disordered stomach, inactive liver, and costive bowels. So that these two sources of disorder, in susceptible habits, are continually reacting upon each other. Some people always feel the feet cold when the bowels are confined; and when the bowels are opened freely, the feet immediately acquire a comfortable warmth. Again, there are people who immediately become costive if the feet be exposed in thin shoes and stockings to cold or wet; and if the feet are warmly clothed, their bowels act tolerably well. So the stomach: every one knows how instantly it is affected with indigestion, wind, and cold spasms from wet feet. The food lies like a stone at the pit of the stomach; oppression, headach, and fever ensue. Biliary obstructions and swimming in the head are often owing to the same cause: and when the head has once become habitually

subject to determination of blood, it is surprising how slight an exposure of the feet to cold and wet will affect the brain, and reinduce vascular determination thither. And this especially in the nervous impaired constitution. These facts cannot be too constantly borne in mind by those disposed to gout.

Yet no error is more prevalent, than for people to neglect attention to clothe sufficiently while young and healthy: and when they have suffered from their imprudence it is too late often to remedy the mischiefs, without a perseverance and care to which few will submit. How common is it for a person, when first becoming more than usually sensitive to the weather, to adopt a flannel underdress, and warm great coat, while the feet and legs are exposed in cotton or silk stockings, and thin shoes. Such folly is its own punishment. Not a few gouty invalids have I met, who have struggled with the disorder for ten or even twenty years, and declare they would give half their fortune to get cured; yet no argument will induce them to adopt flannels next the skin. From what we have said of the state of the skin in gouty invalids, it must appear evident that this is absolutely indispensable. Yet do these people retain such an obstinate and absurd prejudice against their use as to turn a deaf ear to every persuasion. If they have not a mind open to conviction on the plainest truths in physiology we pity their prejudices, but they deserve their sufferings.

The practice of sleeping in bed-clothes that have contracted damp is of all others the most prevalent, yet the least appreciated mode in which various serious disorders are brought on in this country. In a moist climate such as England, particularly in the winter season and rainy weather, this is almost universally the case, and no sufficiency in the building of dwelling houses can effectually prevent it. Woollen blankets in particular imbibe moisture from the surrounding air with avidity, and are always

saturated in proportion to its humidity. This is easily put to the test by holding woollens, that have been in disuse for a day or two, in damp weather to the fire; the heat causes the moisture to evaporate as perceptibly as if damped on purpose. A person who envelopes himself nightly in bed-clothes, thus charged with moisture, can hardly escape evil consequences. Even the most robust on occasions contract serious illness from sleeping in a bed more than usually damp. How much more then the enervated and susceptible frame? Some such, it is well known, from getting a damp bed in travelling, or otherwise, contract disease from which they never recover. Inflammations, severe rheumatisms, and various chronic disorders of the internal organs, may often be referred to this origin. But there are, besides, large classes in the community, who in a very insidious and imperceptible manner fall into bad health, and linger for years under chronic maladies, the real origin of which they cannot discover; and such people will find a degree of dampness of their beds, hardly often perceptible to the sensations, to be no unusual source of their sufferings*.

Let us examine the effects so produced. When a person steps into a bed even slightly damp, there is first

* It is a very common idea, that when a bed is constantly slept in, damp is impossible. The idea is far from correct. In the wet, rainy seasons of the year, and in many other circumstances, damp will arise quite sufficient to disturb the health of a delicate, nervous invalid, even although he sleeps in the same bed constantly. After a thaw, for instance, succeeding a continued frost or snow, damp will penetrate the most sufficient house. In wet and windy weather damp penetrates everywhere. In tropical and subtropical climates the air is always fully charged with moisture, and woollens imbibe it greedily. Ground floors and attics are always damp. Beds placed near a window, or next the outer wall of the house, or next a partition wall of an adjoining tenement, are almost always subject to damp. These are only a few of the circumstances that might be enumerated in which damp will arise.

a rapid abstraction of heat from the whole surface of the body; the skin is rendered torpid and its functions arrested; whence a sense of chilliness, cold feet, and wakefulness. The person is long before he feels that comfortable warmth necessary to repose. He is in fact subject to a universally sedative influence affecting the surface of the body; and the impressions there made are communicated by direct sympathy upon the internal parts, especially the stomach and alimentary canal, the surface of which partakes of the torpor of the skin, whence flatulence is abundantly formed, with rolling movements, a sense of internal sinking, and spasmodic affections. The action of the heart also, and the circulation are repressed; and where the brain is deficient in power, it sympathizes most immediately with the skin and the bowels; whence that confusion, mental wandering, and nervous irritation so troublesome as to prevent sleep. The individual does not lie long till heat being confined begins to accumulate: a reaction of the circulation and of the nervous sensibility is thus occasioned, the moisture is converted into vapour, and is attracted to the surface of the body; whence it happens, that while reaction is excited in the internal parts, and slowly pervades towards the external, it is effectually prevented in the surface and extremities by the damp continually abstracting the heat, and keeping up the torpor of the skin. The alimentary canal now acquires a morbid sensibility to its irritating contents. The impressions there made are communicated towards the brain and the nervous system, and in some circumstances affect also the circulating actions; whence arise throbings, palpitations, irritability of the brain, startings, and a whole troop of distressing and indefinable nervous sensations, disturbed dreams, &c.

This is the true secret of many a restless, anxious, sleepless night, of many a miserable, gloomy hypochondriac day. It is generally far towards the morning before the heat

pervades to the surface, in such abundance as to re-excite the circulation in the cutaneous vessels, and equalize the distribution of the blood, thereby relieving the internal organs, and some sleep is procured. Even then the process of restoration is often imperfect. Headach, wind at stomach, wheezing at chest, and painful rheumatic aches sometimes attend, and sometimes perspirations burst out, which drench the invalid and add greatly to his discomfort. He at length drops over asleep, when he should be thinking of arising, and after closing his eyes an hour or two, he gets up languid, unrefreshed, sad, despondent, incurring the stigma of laziness without any of its comforts; peevish, irritable, and fretful, his haggard aspect, low spirits, impatience, and dissatisfaction, render him the very picture of melancholy, discontent, and wretchedness. Hence the proverbial remark, when a person is more than usually sour and snappish in temper, that he surely has not slept well last night. It is not, in fact, till the system has been roused in its functions by the stimulus of breakfast, or experiences the vivifying influence of mid-day heat, or is stimulated by active exercise in pure air, that he is enabled to shake off that unaccountable nervous depression, languor, and irritability, contracted during those slumbers which should have produced vigour and tranquillity.

Such is a faithful representation of the evils so universally incident to the nervous and gouty, and such is one of their originating causes. It has long been remarked, how subject to depression in the morning and noon such invalids are, and how much better they feel themselves towards evening; how loth to go to bed; how restless, uneasy, and sleepless, and wretched during the dreary night; how lazy, languid, and averse to get up in the morning; how backward to encounter the first impressions of a cold, or raw, wet atmosphere. And indeed it is almost incredible how much the susceptibility to chil-

ness from cold and wet is increased by the disordering cause just adverted to.

Those who are unaccustomed to close observation, and who enjoy robust health, may charge me with an exaggerated picture of these evils, and perhaps with whimsical and overstrained notions of their cause. But I appeal to the experience of the delicate and susceptible nervous invalid; and I feel convinced, that the more attention is paid to this point, the more clearly will the extent and the reality of the mischiefs so originating appear. I have put the matter so often to the test of actual experiment, that there is no room for either doubt or misconception.

It is when the healthy energy of the brain and nervous system has been impaired, that the invalid becomes so susceptible to this disordering cause. Nothing contributes to this so much as impure confined air. A close airless chamber, curtains drawn, and a damp bed, will throw any one into the embrace of incubus: much more where the stomach is loaded with indigestible food, and the biliary system and bowels obstructed. Those also who have suffered from inflammations and determination of blood to the head, and who have in consequence been much bled, are peculiarly subject to suffer from the slightest damp in sleeping. The system also, when enervated by sensuality and debauchery, is very sensitive in this respect. Where the vital powers are strong, the circulation active, and the heat of the body freely extricated in abundance, the constitution has power to resist the impressions of damp, with slight inconvenience; but when the body has been weakened, its nervous energies impaired, and the heat and circulation deficient, the case is otherwise. Then the derangement of the functions, created in the way above described, contributes in no small degree to convert the simple nervous and dyspeptic invalid into the very peculiarities of the gouty diathesis.

Little as this cause may have been hitherto noticed, it

is not therefore imaginary ; its effects are demonstrable on the clearest physiological principles. And no gouty invalid has any right to charge his ancestors with his sufferings, who, after having reduced his system by errors or excesses to a state of nervousness and debility, permits himself to be exposed in the remotest manner to the impressions of damp, in a way so calculated to disorder that most important organ the skin, and thereby involve the whole internal functions.

That gouty invalid who neglects those means, which are so easily practised, of keeping the skin in a healthy and agreeable state of heat and activity by proper care in dress, and due precautions to avoid damp, has no reason of surprise that he becomes daily more and more nervous and hypochondriacal, more susceptible to every atmospherical change, and more sensible of the slightest errors in diet, and every other exciting cause of gout. It is of the very nature of things that this should be so. In the present condition of his constitution he is unable to resist those disordering influences to which he is exposed. And as his constitutional powers gradually decline, maladies of a more serious and complicated nature are in prospect. So far, therefore, from grumbling at the gout, he may be glad it is not yet worse with him*.

9. Excessive mental excitement from night watching, intellectual labour, and the various passions of the mind, assist in creating a tendency to gout.

That mental exhaustion from literary labours, close application to business, anxiety, grief, and the other harassing

* The rapid abstraction of electricity from the body I believe to be one chief evil consequence resulting from damp beds. For some years I have recommended a flannel blanket, lined with oiled silk, to be spread on the bed as a preservative. This simple plan is in the case of nervous invalids the best of opiates. The sleep will often prove at once tranquil and refreshing, where, previous to its use, the person has not had a good night for months. No gouty invalid should be without it. In travelling it is invaluable.

and depressing emotions, also from habitual late hours and want of sleep, have a direct and powerful effect in debilitating the whole functions of the body, is a point of universal experience. As sleep, for instance, is the natural restorative of exhausted energy, continued wakefulness occasions at once a depression and irritability of the whole frame. Add grief, chagrin, anxiety, wounded pride, disappointed ambition, and those agitating and tumultuous passions which gain an entire ascendancy over the control, or keep the system wound up to the highest pitch of excitement and distraction, or depress by an overwhelming weight the faculties and functions,—and the effects upon the health and strength of the body are at once visible. How often the gout ensues in such circumstances, in those otherwise disposed, has been observed in all ages.

Sydenham informs us, that by “ being too intent on his studies he brought on the worst fit of gout he ever had;” and again, “ so often as I fell to study, so often the gout returned.” Heberden notices a case of gout which stopped instantaneously by a sudden alarm of fire, showing clearly the influence of the mind over the disorder. “ The man was as lame as the disorder could make him; yet the fear of being burnt forced him up, and he made very good use of his limbs.” So convinced was Cadogan of the influence of this cause, that he considered it to be one main origin of the disease. “ Every great degree of vexation,” says he, “ anger, envy, resentment, discontent, sorrow, has most deleterious effects on the vital functions. The first effect of grief or vexation is to take off the action of the stomach entirely. Suppose a man in highest health and spirits, and good appetite, sitting down to dinner, receives suddenly some very afflicting news—instantly his appetite is gone, and he can neither eat nor swallow a morsel. Let the same happen after a hearty meal, the whole power of digestion is cut off. What he has eaten lies like an oppressive load, or is rejected by vomiting. The nervous influence is called

off to supply the tumultuous agitation of the brain ; and the stomach, with all its appendages and secretions, is left powerless and paralytic. Besides, the whole circulation of the blood is disturbed, all the secretions become irregular, some too abundant, others none at all. Hence a hasty gushing of pale limpid urine in amazing quantities, sudden bursts of tears, sometimes great dryness and thirst, sometimes the overflowing of the mouth with water instead of saliva (he might have added also a sudden flow of bile, with purging), and many other nervous and hysterical affections; sleeplessness is a necessary consequence ; and indigestion as naturally proceeds from this cause as from long-continued intemperance, with wind, eructations, heartburn, and hiccup, nausea, want of appetite, &c. &c."

These observations are quoted at length, because no writer has more correctly described the effects of the mind on the functions of the body.

Brown reckons " interruption in the train of thinking to be hurtful to the gouty, but hard thinking much more so." " A deficiency in the stimulus of passion (mental apathy) is considerably hurtful ; but a high intensity of passion will convert a moderate degree of gout into the highest degree of it." Apathy and inordinate sensibility, or excitement, he therefore reckons to be alike injurious.

Parry particularly notices " late hours and mental anxiety." Scudamore considers " the depressing passions, as grief, anxiety, &c. to have a strong effect in impairing the healthy energy of the brain and the digestive functions, thereby predisposing to gout ; also severe study."

Dr. Johnson is more explicit still. " Nothing more strongly determines a fit of gout among the predisposed than violent passions of the mind. Stahl mentions cases where the effects of terror, and also of anger, were so sudden in exciting a paroxysm, that the patient could not walk, but was obliged to be carried from the spot to his bed. Inquietude of mind, sorrow, and all the melancholy

emotions of the soul, conduce in a very eminent degree to gout. Profound meditation is still more hurtful. Van Swieten knew a mathematician, of temperate habits, but hereditarily liable (*supposed so at least*), who could at any time bring on a fit by solving a difficult problem."

Sitting motionless at hard study, with the mind kept fully concentrated on the subject for some hours, there is a general langour and torpor of the whole frame produced. The nervous sensibilities are blunted, the heart's action is repressed, the circulation flags; there is frequent sighing; the feet become numb and cold; the stomach oppressed with flatulence; and, if the person continues till towards or past midnight, there is an unusual chilliness felt, a confusion about the head, and general exhaustion. When the individual in this state retires to rest in an airless apartment and a damp bed, we have a still farther disturbance of the functions produced, and it is no wonder if the night is spent in anxious sleeplessness and tossing to and fro. When reaction does at length supervene, we then have the circulation pouring down to the torpid extremities, creating that tingling, formication, or aching, in the lower legs and feet, so accurately described by Parry; and in certain circumstances a smart fit of gouty aching and throbbing in the ball of the great toe. A constant habit of thus sitting up late, especially in winter, with exposures during the day previous to a cold, damp atmosphere, soon tells upon the constitution, and the most severe fits of gout have been in this way brought on.

That intense study and excitement of mind does lower the constitutional energy; any gouty or nervous invalid may easily convince himself by the experiment of sitting up a few nights in succession, working arithmetical problems till he feels himself exhausted. If he then eats indigestible food, and exposes himself to wet feet or wet clothes, he will ascertain the effect in a manner more convincing than by any argument.

It is plain, then, that it is by over-exciting and exhausting the brain, and thus depressing the nervous energy, disordering the circulation and the digestive organs at the same time, that these mental causes act in disposing to gout, or exciting the fit in those already disposed. And in proof of the fact, we meet in daily experience with frequent cases, where keeping late hours in social or convivial parties, so as to retire nightly to rest jaded to exhaustion, has induced gout in those otherwise exposed to its causes. Those also who are harassed by continual anxiety, or overwhelmed by chagrin and disappointment, or by grief, as in misfortunes and domestic calamities, often fall into gout in consequence.

10. Repeated and excessive bleedings, under certain circumstances, accelerate the gouty diathesis.

It may seem strange to some people to include this among the disposing causes of gout. I believe, however, in doing so, I am warranted both by physiological principles and by facts.

Physiology tells us that blood is the source of animal life, possessed of life itself, and communicating vital energy wherever it pervades. It is the natural stimulus to vascular activity, and is therefore indispensable to circulation and to heat. It, by a mysterious influence, excites the nervous system and supports its tone and sensibility. It supplies the secretions, and furnishes the materials which compose the whole solid fabric of the body.

When blood-letting has been either excessive, or too often repeated, what are the effects? Great and protracted nervous debility, defective animal heat, a weak and irritable circulation, subject to great and constant irregularities, both in its velocity and distribution, from slight causes; a tendency to spasmodic affections, a disturbed state of the secretions, sometimes excessive, sometimes defective; irregularity of the whole functions of life; and, in short, every

symptom indicating existing deficiency in the vital energy of the body.

The duration of these symptoms, connected with the weakness arising from injudicious bleeding, depends on the constitutional power of reproducing blood in such quantity and quality as is requisite to restore the due vigour and activity of the functions. The basis of this restorative power unquestionably is a healthy state of the brain, which supplies nervous influence for the functions of digestion and respiration. Wherever, therefore, the energies of the brain have been impaired, as for example by sensuality, intemperance, impure air, or other causes; wherever also a disordered respiration coincides, and especially when digestion is imperfect and the stomach weak; and in like manner when indigestible or innutritive food is habitually used; in all these circumstances might we expect the individual to be long of recovering from the effects of copious bleeding, even in cases where it was imperatively necessary to subdue urgent disease. This expectation is confirmed by all experience and observation. The injurious consequences of bleeding a nervous patient largely or frequently, are medically proverbial. Such invalids already want stamina and vital power; and you frequently see them, if imprudently bled, brought down to the very lowest ebb, and it is months or years ere they recover.

As all gouty invalids are not only afflicted with nervous symptoms, but actually deficient in nervous power, we might expect bleeding to be also highly injurious to such. This is actually the fact, for we find bleeding strongly reprobated in gouty constitutions by various sound writers. And even when there is every appearance of an overfulness of blood in the habit, the invalid cannot bear to lose blood.

“Want of a sufficient quantity of blood,” says Brown, “is so hurtful at all times, that though the theory of physicians led them to the notion that gout depends on plethora

and vigour, yet nobody ever thought of taking away blood. This (says he) is one of those many contradictions between theory and practice." This point has been shown at length. (See vol. i.)

In not a few instances in my own observation, the weakness, consequent to the loss of blood, has induced a smart fit of gout. In various instances I have proven the point most incontrovertibly. A person having been exposed to hurtful causes, calculated to dispose to gout, and having suffered considerably from their effects, but having had no decided attack of the disease, has been injudiciously bled; great and protracted weakness followed, and such a tenderness of constitution and susceptibility to cold and damp, and other exciting causes of gout, that very slight exposures would immediately bring on a fit. The very same individual, by recourse to measures tending to restore the strength, and decidedly to reinduce a more plethoric state of the body, has thereby been so entirely fortified in constitution as to escape all subsequent attacks of gout, notwithstanding the most imprudent exposures to the same causes as before brought it on. I say this is an undeniable proof of my position, if the cases are sufficiently numerous to escape the influence of incidental circumstances. But the cases of this description have been so numerous, that I hesitate not to say, " Give me *any* gouty invalid, however old and inveterate his disorder, who has been much bled formerly, and is now still apparently plethoric in habit and liable to frequent gout, and I am convinced I would do away the necessity for future bleedings and also the tendency to future gout; not by abstinence and spare diet, but by such a course of diet as has a direct tendency to restore a fulness of blood, and that sometimes animal food thrice daily.

There are gouty constitutions, it is true, where this indiscriminate full living does not suit, and unless accompanied with other means at the same time, it is decidedly improper in any case. But by paying due attention to the

existing peculiarities of the constitution, and guarding against evil consequences, this kind of diet is often the most beneficial that could be adopted.

Such facts, and numerous others that could be adduced, clearly prove, that bleeding, in certain states of the constitution, particularly in habits weakened by excesses and intemperance, and especially in a cold moist climate, assists in disposing to gouty affections, and is very hurtful when the gouty diathesis is already acquired. Bleeding will in such constitutions often convert an inflammatory attack into a fit of gout. (See vol. i, and cases.) It creates also that coldness and torpor of the system which is highly susceptible to impressions of that chilly damp state of atmosphere so prevalent in England, especially in aguish districts; and although this remedy relieves internal organic congestions and other disorders of the circulation at the time, it certainly renders the constitution more and more subject to relapses the oftener it is practised. As the circulating impetus is thereby much reduced; the distribution of the blood is at the same time much more easily disturbed, and the vascular actions become subject to irregularity from slight causes.

When, also, an inflammatory constitution is converted into a nervous by bleeding, the gout is often the ultimate result; and a gouty subject so situated, if farther bled, will become paralytic or dropsical.

The dyspeptic invalid also, if frequently bled, finds the stomach thereby much weakened in its tone, his digestion fails, and he is subject to coldness and spasms at stomach, which sometimes assume a very distressing character; whence those who are reduced by bleeding, find cold drinks or acids very hurtful; and in such habits exposure of the feet to cold or damp, is instantaneous in its effects on the stomach. Sickness, retchings, severe pain and spasms at stomach, choking fulness from wind, and various other violent symptoms, are thus occasioned. Gouty habits are subject,

under exactly similar circumstances, to what is termed gout in the stomach.

We have been told that the whole blood removed is made up in a very short time, within a few days at farthest. This may be true as respects the youthful and vigorous, but not in respect of impaired constitutions. At all events, the powers of the constitution are by no means so soon restored. I believe it will be found that more care, time, and trouble are necessary to restore the debility so occasioned, than most patients will submit to.

It is therefore by reducing the nervous energy, impairing the power of generating animal heat, weakening the circulation, and thus creating a tendency to irregular determinations of blood to the internal parts, by exposures of the surface to cold and damp; and also by the atony of the stomach, and irregularity in the functions of digestion and of the alimentary canal, that detraction of blood assists in inducing the gouty habit: and these effects are so permanent in their nature, as to be with much difficulty restored, especially when the constitution has to contend with other depressing causes. In questioning gouty invalids, it is curious how often it appears, that at some previous period they had been bled, leeched, or cupped for disorders of the circulation, inflammatory attacks, or determinations of blood to the head; and wherever these bleedings have been much resorted to, the gout seems to have been thereby hastened. I do not say that the bleeding could have been dispensed with altogether. It may have been very proper and very necessary to remove the existing disorder. But I believe the error has generally consisted in this:—the invalid, after contracting disease rendering one or two bleedings necessary, has been permitted to go on in the same course as before, taking no adequate precautions to prevent the return of the disorder, and the necessity for repetition of the process; and this at length becomes so often necessary as ultimately to tell very seri-

ously on the constitution. Whereas had due measures been pursued to prevent the necessity for repeating the bleedings after the first or second occasion, and while the constitution was comparatively sound, many serious consequences might have been avoided.

11. *Climate, locality, and seasons.*

Certain general peculiarities of climate do mainly assist in creating the gouty state of constitution; also the seasons of the year have considerable influence.

Climate, by which I mean atmospheric influences, has often been remarked by writers to exert very peculiar and important effects on the gouty constitution; exposures to the weather in various ways and degrees being one of the most common of the occasional causes of gouty fits. Every invalid is sensible of this, and can corroborate the fact by his own experience. But besides these more obvious effects of climate, apparent to every one and long since recorded, I am persuaded that there is an habitual and less recognized influence of climate on the constitution, which has a greater share in creating the gouty disposition or habit than is at present supposed: and I believe, that on due attention to this point, some of those apparently opposite and irreconcileable circumstances in the history of gouty invalids receive a satisfactory explanation, which have hitherto misled inquirers into very erroneous notions as to the true causes of the disorder.

I shall first inquire what are the effects of climate on healthy constitutions, as respects heat, cold, moisture, and vicissitudes; including also the diurnal and annual revolutions.

Cold applied to the body acts as a direct sedative. It diminishes the nervous sensibility, represses the activity of the circulation, detracts from the sum of the animal heat, and thereby diminishes stimulation. In the cessation of excitement and sensibility that ensues, the whole vital

actions are moderated, existing irritation is soothed; and in the same manner as sleep recruits the wasted powers, so does cold restore and invigorate the nerves when over-stimulated, and in fact promotes the tone and vigour of the whole body.

When again a warmer atmosphere succeeds a colder, the animal heat increases in its sum, the surface of the body is re-excited, nervous sensibility returns, and a re-action of the circulation takes place; so that the blood diffuses itself in greater abundance towards the remote and superficial parts of the body, and the secretions are also promoted.

Alternations of cold and heat therefore in healthy constitutions, within certain limits, are salutary; promoting, on the one hand, the vigour and tone of the body, on the other, the due activity and excitement of the various functions.

The changes of temperature occasioned by day and night, and also those more progressive and slow alternations of heat and cold on the large scale attending the annual revolution of the seasons, are a natural provision admirably adapted to effect these objects as described. Constituted as our bodies are, such a constant and regular succession of cold and heat is just such as the necessities of the human frame require. The alternations of day and night, of winter and summer, are far from being merely incidental and unimportant circumstances in the general adaptation of the earth to man's constitutional wants; neither do they bear reference solely to the productions of the earth for his use. They exert a continual and direct influence on his constitution, calculated to aid the vigorous and healthy performance of the various functions of the body each in its due degree and order, and they conduce mainly to the perfection and longevity of the species.

Let us therefore, even at the risk of some repetition, trace the effects of these changes on the human body.

During the winter, the prevailing cold acts as a universal sedative and tonic, soothing the nervous excitement and sensibility, allaying the activity of the circulation, moderating the functions of the skin, and diminishing the various secretions.

As the spring opens, the sun gains daily in influence, generating a gradually increasing atmospheric warmth. The body therefore becomes subject from this heat to a reactive effect, during which the nervous sensibility and circulation are gradually re-excited, the blood is more equably diffused towards the surface and extremities of the body, and the secretion by the skin is increased.

If the cold of winter were to continue unmitigated from year to year, without the genial influence of summer, the human race, as is apparent in polar regions and upland mountainous districts, would degenerate into dwarfishness.

If the heat of summer were continually maintained the whole year round, a tendency to degeneracy of the race would be also observed, as we see in tropical latitudes. It is in the medium betwixt these extremes, where a moderate and regular winter cold is succeeded by a mild, genial summer temperature, that the species approaches most to perfection in stature, health, strength, and longevity.

In observing also the influence of day and night on the constitution, there is a sedative effect produced in the morning before the sun is up, a reactive tendency promoted towards noon under the solar influence, and again towards evening this reaction is repressed by the sedative effect of the evening cold; and this sedative effect is at its maximum at midnight. Hence those who sit up late feel unusually chill and depressed towards midnight, partly owing to exhaustion from want of sleep, but chiefly from the total absence of solar influence in the atmospherical temperature. In regular habits this sedative effect is never thoroughly experienced; for before midnight, the constitution, enveloped in warm blankets, has experienced the reaction arising

from the accumulation of heat in bed. Whence the common remark, that one hour's sleep before midnight is worth three after that hour, is actually true to a certain extent. By early retirement to rest, the sedative effect on the constitution, to an extent such as to disturb the functions, is escaped.

If we connect these two influences, the annual and diurnal successions of cold and heat, in their joint effect, we find, that about or a little after the summer solstice, the influence of the sun being at its maximum, the nervous sensibility, heat, circulating excitement, and cutaneous secretions of the body, are also at their maximum. The temperature of the day and night differ so little, that the sedative effects of evening and morning are not sufficient to restore the frame by soothing the sensibilities, over-excited and irritable from the previous warmth. Whence the languor and irritability felt in summer, when the heat is long continued, and the nights are spent in restlessness and anxious oppression. Exhaustion and relaxation of the frame are the consequence.

As the autumnal equinox verges on, the mornings and evenings get cooler in relation to the mid-day heat; and about the equinox, the difference in the temperature of mid-day and midnight is at its maximum. We have therefore a powerful sedative effect in the morning, which braces and invigorates the body; a powerful reactive effect at mid-day, which rouses and stimulates the actions and sensibilities of the frame; and again towards evening a sedative effect, from the increasing cold reaching its maximum at midnight.

As the season passes on from the equinox towards the winter solstice, the heat of the sun daily diminishes, and the cold gains a daily preponderance. The sedative effect on the body goes on progressively increasing, being less and less counteracted by any genial influence from the solar heat at mid-day; whence the gloom and depression so universally

experienced by the nervous in November and December, which is more and more felt till the shortest day. So soon as this minimum of solar influence and maximum of sedative effect on the body has passed over, the sun gradually acquires more of meridian influence, and a daily increasing ascendancy over the prevalent cold. The human constitution at the same time is subject to a proportionate reactive disposition; which reaction is felt the most at noon, and it daily becomes more and more apparent till the vernal equinox, when we have the difference betwixt the meridian and midnight temperature again at a maximum. We have daily a powerfully sedative effect in the morning, a powerful meridian reaction, which again subsides into a sedative condition on the access of evening. This daily effect on the constitution is exactly similar to that at the autumnal equinox, only it occurs under different circumstances. In autumn it is connected with departing heat and progressively increasing cold: in spring it is connected with progressively diminishing cold and advancing heat. After the vernal equinox, the difference in the meridian and midnight temperature gradually diminishes; the daily sedative effect at morning and evening becomes less and less apparent as general atmospheric warmth prevails, till, towards the summer solstice, the general effect on the constitution is stimulation and excitement by atmospheric heat.

While the constitution is sound, vigorous, and unimpaired, these various changes in the annual and diurnal circles produce their natural effects on the bodily functions without occasioning any inconvenience or deviation from health. Indeed they are rather salutary than otherwise. The morning air is felt agreeably cool and bracing; the mid-day heat excites the circulation and sensibility of the body, free perspiration is promoted, by which extra heat is carried off, and certain exhalations destined for expulsion from the blood. The access of evening also is pleasant and refreshing by its coolness, tranquillizing the sensibilities

of the frame, and abating the excitement of the previous heat. In like manner in regard to the atmospherical revolutions on the larger annual scale, the power of resisting the progressively increasing winter cold is in proportion to the hardy and healthy state of the body; and so also is the power of accommodating itself to the atmospheric heat of summer. When the surface is locked up, and the various secretions diminished, as in winter, the heat of the body increases in sum, and the cold impressions are resisted. When the access of summer heat re-excites the system, the effect would be detrimental were it not for the free tendency to secrete by the skin, characteristic of health, which carries off heat by evaporation. It is far otherwise when the constitution has been deeply impaired, and in particular where the nervous powers have been much reduced by any cause, whether sensuality, impure air, sedentary habits, long residence in a tropical climate, frequent bleeding, organic disorders, &c.—in all these circumstances atmospheric influences gain a greater than usual ascendancy over the condition of the functions. The power of resisting cold and of supporting heat is no longer the same. The relations of the constitution to the natural circumstances in which it is placed are entirely changed. Those alternations of temperature connected with the revolution of the seasons, and of day and night, although salutary and agreeable to the vigorous and healthy, produce extreme effects on the enervated constitution, and become a continual source of disorders. Reduce the constitutional vigour by a single degree, and you produce an effect equivalent to increasing in the same ratio the rigour and extremes of climate: and when the internal organs are at the same time impaired, every exposure produces specific effects, unknown to those whose functions are sound. It is the diurnal alternation of morning cold, mid-day heat, and evening cold, as described above, that gives rise to the remittent fever which so often preys upon weakened, ener-

vated, and gouty constitutions. It is the access of vernal heat, without any corresponding adaptation of the functions of the body to the change, that originates the febrile reaction, the inflammatory excitement of the vascular system, and similar disordered states of the habit, which so often arise in weakened constitutions at that season. And when severe summer heats are long protracted, such constitutions experience unusual degree of fever, exhaustion, and irritability therefrom, by which they are susceptible to the slightest causes of disorder. Again, as the season passes on, it is the sedative effect of departing heat, and gradually increasing cold, that occasions that unaccountable depression and gloom, which in November and December weigh down the strength and spirits of those, whose constitutions are much impaired by excesses. When this sedative and torpefying influence of winter cold is experienced in any considerable degree, the circulation partakes in the effect, and such determinations of blood take place to the internal organs, as derange the whole functions of life, and induce the most serious disorders. When these effects have taken place in winter, and the organs are subject to chronic congestion while the cold prevails, the constitution has then to contend with that vernal reactive tendency, which the increasing solar heat progressively excites, and whence we discover a fruitful source of all those disorders, which depend on local congestion and general reaction in spring.

As the constitution therefore becomes more and more reduced in vigour, and impaired in the soundness of the organs subject to congestion, particularly after the middle of life, year after year finds it more affected by the approach of winter, and less able to withstand the severity of the cold. The disorders to which at that season it may be subject become more inveterate and serious in complexion. Recovery on the access of mild genial weather is more difficult and slow, the heat of summer is felt more oppres-

sive and exhausting ; and in fact the body becomes habitually subject to annual and diurnal alternations in the condition of its functions of a morbid nature, corresponding with the varying alternations in the atmospheric temperature. This very interesting view of atmospherical influences explains many striking facts in the history of diseases, and in particular one observation, long since made, but not easily explained on any other principle—that in weakened, impaired habits, those disorders to which they are prone of a chronic nature, return every succeeding year exactly at the same period. A winter cough of old standing will return year after year, almost within a week of the same time, always getting better in summer, and recurring on the first decided change to cold weather. People subject to inflammations are sometimes in a remarkable manner seized this year exactly about the same time as the last year. Dyspepsia also returns with striking uniformity, immediately after the breaking up of the weather in autumn, and a change to cold and wet takes place. So in like manner those more serious and alarming diseases to which impaired constitutions are subject—a paralytic stroke, for instance—returned four successive years in an old infirm constitution, exactly at the same period within a day or two. And the same has been remarked in other cases. The gout is in this respect remarkably under the influence of the seasons: many invalids, who get almost free of the disease in summer, have found it return upon them one year after another, regularly at the same time, almost on the very day of the month.

Such coincidences as these are far from imaginary or accidental ; and those who are subject to such diseases will do well to study the subject, and to be on their guard at the expected period against exposing themselves to exciting causes ; a practical lesson, which might prevent them much suffering during the winter, and on frequent occasions save lives.

That disorders of this kind do not always recur uniformly at stated periods, as is well known, is no proof of the fallacy of the observations referred to; various causes tend to interrupt the uniformity. 1. Peculiarities of constitution acquired in the current year intermediate. Some gaining strength, others losing it; some falling into a more serious and complicated form of disorder, others recovering a morbid habit more simple and more slight than for years past. Habits of life also contribute to these changes, and other causes. 2. The state of the atmosphere itself, from peculiarities of weather, which in one season varies very much from another.

These circumstances will cause a wonted disorder to return sometimes sooner, sometimes later than the year before, and sometimes also to assume a character considerably different one year from another.

In judging of the influences of climate on the constitution, those various changes in respect of heat and cold, which are caused by the direction of the winds, the degree of cloudiness, the moisture and rain, and those ever-fluctuating states of the atmosphere styled the weather, require constantly to be taken into account. And no subject in regimen requires more to be studied by the susceptible invalid than this. To enlarge upon it here would be tedious and out of place; we shall reserve remarks on it for future inquiry. (See curative measures.)

In tracing out the causes of gout, however, it is of great importance to take some notice of the effects of moisture, which, along with variations of heat and cold, has no small effect in creating the gouty peculiarity of constitution.

The specific effects of atmospheric moisture on the enervated constitution are best explained by illustration.

When the body is relaxed from long-continued warm, oppressive weather, a change to cold and damp produces a much more decided impression on the whole functions, than when the previous heat was less intense and pro-

tracted. A sudden change is also much more felt than a gradual, and much more so also if attended with moisture. Cool, dry autumnal weather, succeeding warm, sultry summer atmosphere, is most salutary. But a cold rain setting in, lays up thousands with serious maladies. There are situations where any change to cold after heat is always attended with moisture in no ordinary degree, and such are the low, flat, swampy districts of England. In warm weather the atmosphere in such situations is always saturated with aqueous vapour, in direct proportion to the heat. This the cold condenses into dew, fog, or damp, which settles on every object on the earth's surface, rapidly abstracting the heat from it. When damp is thus deposited on the human body, which it often is to a considerable extent in dewy evenings, or in cold winds succeeding heat, this rapid abstraction of heat from the body is often productive of great disturbance of the functions; but the attention being generally directed to other more obvious causes, the true origin of the evil is overlooked. Let us give the case, therefore, all the force of an extreme for the sake of better illustration. Supposing we have first a course of rainy weather, and hot weather sets in immediately after; the air, previously cool and moist, is raised many degrees in heat, the surface of the ground being surcharged with moisture, evaporation takes place rapidly, in proportion to the degree of heat. The higher the temperature the greater being the quantity of moisture the atmosphere suspends. In this sultry humid state an easterly wind sets in, much drier and colder, and capable of suspending less aqueous vapour. The first effect is condensation of the vaporized moisture, in the hot, low, swampy districts over which it blows. A copious dew, or fog, or damp, is thrown down, and settles on every subjacent object. But the wind in question speedily acquires a higher temperature, and has its capacity for moisture thereby increased. The vapour therefore is no sooner

condensed, than it is revaporized, whence the drying tendency of such a wind. It has not blown a half hour till the wet streets and the whole surface of the earth are speedily dried up, as every one has observed. In fact, a constant process of condensation, deposition of damp, and of immediate vaporization, goes on so long as the wind in question lasts.

It is not difficult to estimate the effects of such a successive vicissitude of the weather on the enervated susceptible frame.

We have first cool damp air, with occasional exposures of the feet and surface of the body to the rain and wet ground. The heat is quickly abstracted from the parts so exposed; a sedative effect ensues on the whole body, especially affecting the nervous and circulating functions; the skin is struck chill and torpid, the circulation repressed in its activity and force, the blood repelled from the surface upon the internal parts, which are oppressed with redundant blood, and at the same time affected with torpor sympathetically with the skin. This state continuing more or less for some time, a corresponding constitutional tendency to reaction occurs. This reactive disposition being coincident with an external cause of reaction (a change to atmospherical heat), the constitution is thus re-excited, both in the nervous sensibility and the circulation. But the heat not being adequate to resolicit the blood to the surface and relieve the internal organs, reaction is attended with partial internal congestion; and as no cause coincides to re-excite the torpid state of the internal functions, we have reaction attended with partial organic congestion, costiveness, obstructed bile, hepatic torpor, and disordered stomach. The actions ensuing therefore partake of the morbid character, fever, lassitude, disordered functions, and unusual constitutional depression. One of the first functions that in such circumstances comes into exercise is perspiration by the skin, and undoubtedly some

relief is thus obtained. But the bowels continuing torpid, or locked up, much constitutional irritation is experienced, together with bilious headach, oppression, and fever. In this state of derangement a chill easterly wind sets in, the body, exposed to its cold current, has the heat rapidly carried off from the surface. 1. By the cold wind directly. 2. By the condensed damp which is deposited on the body. 3. More completely than either, by the quick evaporation of the damp and perspiration occasioned by the cool current of air. What are the effects? The skin is struck torpid and chill, whence the piercing keenness of an easterly wind in such circumstances is proverbial; the circulation is suspended in the exterior and surface, and is still farther repelled on the internal organs, which are thus greatly oppressed and obstructed. The whole internal secretions are arrested by sympathetic torpor with the skin, and we have produced a second time a state of general collapse, both of the nervous and circulating functions, a mal-distribution of the circulation, whereby internal organic congestion is occasioned, with cold, numb hands and feet, headach, oppression, shivering, &c. The degree in which these derangements take place, depends on the exposure, also on the previous soundness of the organs of life; and in like manner, the organ more particularly affected with former inflammation or congestion suffers now in a peculiar degree. The asthmatic finds the lungs and breathing chiefly affected; the dyspeptic finds the stomach more especially disordered; those subject to hepatic obstructions find the liver immediately deranged by such exposures, and so forth.

The indications of this state of collapse are, however, in all nervous invalids, pretty nearly similar. An uneasy sense of numbness, weight, or tension in the head; confusion, giddiness, and shooting pains there; oppression, hiccup, or cold spasm at stomach, which is filled with wind; sensations of sinking, rolling noises, or griping pains in the

bowels ; sense of weight and tightness at the liver ; slow, oppressed, or obstructed breathing ; uneasy fulness or a struggling oppression at the heart, with unusual languor in the action of that organ and of the pulse ; coldness and numb torpor of the hands and feet, which are deserted by the blood ; a general want of heat and feeling over the body, with chilliness or shivering. The circumstances of exposure which produce these effects are endless, and are familiar to every one's experience. A cold ride in an open vehicle in a wet day ; getting a chill by sitting or standing in the open air, while it is cold, raw, and moist, and the body is fatigued or perspiring ; being overtaken in a shower of rain, while a cold easterly wind is blowing ; sitting in a cold current of air while perspiring ; these and innumerable other exposures are exactly equivalent to the atmospheric changes above described. And sometimes the robust and healthy are thus so seriously affected, as to contract severe colds, rheumatisms, inflammations, and such other maladies ; whereas the nervous and susceptible are so familiar with the symptoms above detailed, that they can hardly move out from home, except in the finest weather, without being subject to contract violent maladies. It is the reactive period that always is the period of greatest suffering, and the symptoms sometimes assume the most alarming characters. These we do not here specify farther.

But we go on to remark, that in impaired and enervated constitutions, there is a habitually depressing effect produced by a course of wet and moist variable weather, especially in the winter months, in a very insidious manner, so as gradually to induce the derangements just described, without attracting much attention. And to the effects of a moist, variable climate on susceptible habits, acting in the way above noticed, do we attribute most of those liver and biliary disorders, dyspeptic complaints, &c., to which the English are so subject ; maladies in short of a chronic nature, slowly engendered and kept up by atmospheric in-

fluences, while the invalid himself is quite in the dark as to their true origin.

During the exposure, he may be using active exercise, or engaged in some pursuit which prevents him from perceiving immediate bad effects. Yet he feels himself during the wet and cold months of the year in continual bad health; the body unnerved and subject to every change of the weather; chilly and shrinking from the cold; the digestion weak, a tendency to bile and costiveness; the animal spirits languid and depressed. Daily is he exposed to the same insidious cause of disorder, a moist, sedative atmosphere. And nightly he is the prey of feverish reaction, oppression, drowsiness, spasms, wind, nervous irritability, sleeplessness, partial headachs, startings, and a thousand nameless ever-varying evils which infest his slumbers: still no symptom is so prominent as to require prompt remedies from the hand of the physician. Favourable changes in the weather, or accidental changes in his habits of life, occur from time to time, to restore transient glimpses of health and comfort. But where the constitution is weak and susceptible, relapses from the slightest exposures are unavoidable, and he at length becomes a confirmed invalid. If the stomach suffers most, he is declared dyspeptic: then authors on indigestion are in constant request, and many medical consultations and long lectures on diet and rules of starvation, and the most unwelcome self-denial, all to no purpose. If the biliary secretion is habitually obstructed, he is of course dubbed bilious, and doomed to blue pill and mercury without measure, for liver complaint. If the head swims and is oppressed, then cuppings, and blisterings, and starvation, and the horrid dread of apoplexy, that minister of sudden death. Still he continues to fall back into the old complaints, only with new and ever-varying symptoms; and he is at length set down for "nervous"—that far-famed apology for bewildered physicians and incurable, indefinable maladies.

Our invalid thus thrown upon himself, cannot rest content without giving full utterance to his sufferings, and describing them in detail to whomsoever he may encounter with an ear open to the tale of woe; depressed in spirits, anxious, despondent, he for ever criticises the weather, and dwells with gloomy chagrin upon his own infirmities. Oh, then, with sagacious looks, is he pronounced "a confirmed hypochondriac." Happy relief to those, who have tried in vain to discover a better and more true explanation of his complaints! But sad doom for the unhappy invalid, for no one can enter into his feelings, he meets with no sympathy; experiencing all the real suffering of serious disease, with the continual imputation that it is all on the imagination. What wonder that peevish discontent, fretfulness, anxiety, and despair, should embitter his life, and poison every enjoyment.

Numerous persons are met with, who exemplify this process in all possible degrees and modifications. The disordered state of the functions goes on progressively, while the powers of the system, under various enervating causes, are progressively lowering; and as the effects of climate are continually in operation, and exposures unavoidable, there is a point beyond which the disordered state of the functions cannot go without a serious crisis ensuing. Now we ask, to what maladies are nervous and hypochondriacal invalids, with impaired constitutions, more especially subject? If we consult experience, we find gout, apoplexy, and paralysis to be the most frequent terminations of such a course of suffering. Under what precise circumstances either of these disorders arise, shall be shown hereafter.

We here remark, that a continually moist and variable climate has a most important share, cooperating with the other causes we have described, in creating the disposition to those maladies, in engendering that peculiarity of constitution which may be termed the gouty diathesis, as well

as the apoplectic diathesis or tendency; these two peculiarities are not far different from each other, as shall appear in the sequel. It is chiefly by the sedative effects of moisture and cold, abstracting the heat and vital excitement from the surface and extremities of the body, repelling the circulation, repressing its activity, and disturbing the functions of the internal organs, that climate acts as a disposing cause of gouty disorders.

In these its habitual influences on enervated constitutions, climate stands nearly in the same relation to gout as to ague; and these two disorders will sometimes pass into one another by very trivial changes of circumstances. In no situations are gouty disorders more prevalent than in the neighbourhood of those moist, fenny districts in which ague prevails.

In drawing the inference, that climate exercises a continual and most important influence on enervated constitutions, in disposing them to gouty disorders, it is not intended to blame this alone, but only in conjunction with other causes. Now one of the most direct of those causes which cooperate with climate, is full and generous fare. It has been customary from time immemorial to attribute the gout, so prevalent in England, to the general use of animal food and good living. If we regard the physiological effects of climate, as above described, we shall be inclined to look on the subject with different eyes. I am informed by persons who have lived much on the continent, that there are certain classes in France, who eat much more animal food than the English, and in more complicated variety; yet gout is far from being so common in that country as here; the climate is much drier and more steady. In certain northern climates also gout is comparatively *rare* in proportion to the existing conviviality. A colder climate than this, if dry and steady, is not so congenial to gout.

What climate then appears to be the most calculated to predispose to gouty disorders? That which in temperature

is not cold enough to impart that tonicity and vigour to the nerves and textures of the body peculiar to northern regions, nor yet so extremely hot as to produce that relaxation and irritability of the nervous system peculiar to the inhabitants of tropical regions: but such a medium as combines the relaxing, enervating effects of heat on the one hand in summer, with the sedative influences of cold on the other, particularly of cold combined with prevailing moisture; such a climate as this creates that peculiarity of the constitution, which, when it is subjected to other enervating causes, will terminate in the gouty state. A full and generous diet is indispensable in this state of constitution, and in such a climate, to the wants of the system; and if it is not supplied, the man loses strength, or, having lost it, cannot regain it; and the disorders to which he is subject indicate this deficiency of power. Those who are weakened by other causes, and have a generous diet in their power, acquire the gout, and along with gout a comparative longevity; they keep up the constitution and maintain the struggle much longer than the others, and the gout is not the necessary result of the animal food at all. It is only an incidental result of the animal food taken under the existing peculiarity of the functions of the body; and if the animal food is not used then, they lose their strength, and the gout may keep away for a time; but after a certain course of abstinence it is sure to return, coupled with that very constitutional depression, which the abstinence was calculated to produce, and thus these people are in a most awkward predicament. If they eat animal food, they find it gives them strength and does them good; but then they are sure of gout in severe acute forms. If they abstain from animal food, and live abstemious, they find they get ease for a time from gout; but then they gradually lose strength, and the gout comes back again as bad as ever, and worse. Both these plans have been tried a hundred times with these very results. The one blames full living and animal food for the gout, the other

blames low living and abstinence for worse than the gout; and the conclusion is, that gout is declared the most unaccountable, mysterious, perplexing malady that can afflict humanity. And one and all cry out from sad experience, "There is no cure for the gout, it must have its own way. I am always the better of a sharp fit, and therefore it must be salutary. There's so and so: he just needs a fit of gout to make him well."

Now by duly estimating the influences of climate, as above noticed, much of this embarrassment is got rid of. Our moist, sedative English climate absolutely requires a more full generous diet of animal food than a dry, bracing, equable climate; and therefore the constitution which has become gouty cannot do in this climate without generous living. The gouty diathesis being the produce partly of the climate, and partly of enervating causes, it is the animal diet and full living that doubtless occasions the disorder to which the constitution is subject to assume the form of gout; but if the animal diet is not taken, these disorders would assume a worse form. Instead, therefore, of taking away the animal and generous diet, we have merely to ascertain from what coincident error, in the state of the constitution or habits of life, this necessary mode of living produces such a morbid result. If we could correct this error in the functions and habits, then the generous living is adopted, not only without injury, but with positive benefit. The state of the climate, and the state of the constitution, both call for it; and all we have to do is to take care that it do not, from an error capable of being rectified, breed the gout. This we conceive to be the true state of the case, and we are ready to prove it on the basis of actual experiment, as has been exemplified in numerous cases.

Having laid so much to the account of climate, in creating the gouty peculiarity of constitution, we may specify in more precise terms the characters of a gouty climate. We say in a sub-tropical climate, the atmosphere of which is

charged with prevailing moisture, subject to considerable heat in summer and to considerable cold in winter; and, above all, when sudden changes, from drought to wet, and from cold easterly and northerly winds to a sultry calm, or mild westerly breezes, take place; when the overshadowing clouds, intercepting the sun's rays, suddenly sink the thermometer many degrees, and the like sudden return of heat occurs when rain ceases and the clouds disperse,—in such a climate might we expect, on the principles laid down, that gouty disorders would be very prevalent.

Does this correspond with observation of fact? It does. Those very features we have described, characterize our English climate. The country is low, flat, and moist, in no ordinary degree; it is subject to fogs, heavy dews, and damp exhalations; exposed to continual vicissitudes of temperature, to cold, dry, nipping easterly winds even in summer, and to mild, genial, sultry weather, almost within a day or two of winter frost. One hour the sun shines most treacherously, inviting, by genial warmth, unreserved exposure; the next, the atmosphere is thickly enveloped in clouds, the rain pours down in torrents, the wind shifts to the north or east with chill and piercing keenness. On other occasions, for days or weeks incessant rains occur, by which the earth's surface is drenched in water, and the atmosphere rendered so cool and moist as to produce a habitually sedative and depressing effect on the constitution, relaxed it may be by previous heat. Such are the very conditions of atmosphere we have been contemplating; and accordingly in England gout reigns triumphantly.

Take similar peculiarities of climate everywhere, *viz.* habitual moisture and continual vicissitudes from heat to cold, and cold to heat; such as arise from easterly winds in districts between the polar and tropical circles, or in more strictly tropical climates; the sea and land breezes; the setting in of evening; the sudden overshadowing of

the atmosphere with dense clouds or fogs, and especially in insular situations, and you find gout also prevail.

In illustration of these views, indeed, the connection betwixt the climate, and the diseases peculiar to, or prevalent in different latitudes, are extremely interesting.

Disorders of cold climates are mostly of an acute and inflammatory character, affecting the internal organs with vascular congestion and obstructed secretions, and are attended by powerful constitutional reaction from the general tonicity of the frame. Those of warm tropical climates are not less acute, and often more rapid in their course; but the morbid action indicates not tone, but debility and relaxation of frame, assuming chiefly the irritative and spasmodic character, and attended by excessive and acrimonious secretions.

Gout is found most to prevail in the medium betwixt these extremes, and approximates to the character of either, according to particular circumstances of locality, latitude, and the season of the year. The gout of a colder climate assimilates with inflammation and congestive disorders; that of a warm climate partakes more of general irritability and febrile action, connected with weakness of the solids and redundant secretions.

The gout of winter, as opposed to that of summer, in like manner inclines towards these opposite extremes. In winter the disorder is more commonly congestive and retrocedent; in summer it partakes more of the external and shifting character, with general febrile irritability. As a good practical proof of these remarks, transport a man of sanguineous temperament, and liable to acute inflammations, from a northerly cold climate to a southern latitude, where greater heat, prevailing moisture, and continual vicissitudes of weather characterize the climate, and he is almost sure to acquire the nervous temperament and become gouty; at least, not a few such cases have met my inquiries. Again,

in this climate, which we style a gouty one, a person who has become subject to attacks of inflammation, or organic congestions in winter, asthma for instance, winter cough, or obstructed liver, is often seized with a fit of severe gout in the spring, when the warm weather first sets in, and the constitution is subjected to its reactive influence.

Let this same person, with a constitution so impaired, emigrate to a warm, enervating tropical climate, he loses both his inflammatory tendency and his gout; but he is almost sure to fall into dysentery or cholera, under exactly similar changes of atmosphere which induced gout here, and inflammatory attacks farther north, or in winter.

Let him remain in this country, and after his inflammatory or congestive attack in winter, and gout in spring, the same invalid will become much better as warm, genial summer weather sets in steadily; but in the end of summer, when the frame has been over-excited and rendered morbidly irritable by the summer heat, he will be peculiarly subject to bilious purging, dysentery, or cholera, on the very first change to moist, rainy, or cold weather. Hundreds so situated are taken every year with such disorders in autumn. The enervating influence of continued heat is such, that the constitution is unable to withstand the sedative effects of the first sudden impressions of cold and damp, and the bowels are so susceptible to cutaneous impressions as to be immediately affected by the change. This same person, as the cool, dry, bracing weather sets in, recovers from the tendency to diarrhoea and excessive secretion; the system acquires tone, the functions resume their due equilibrium, and an interval of health is enjoyed. But on the access of still colder and wet weather in early winter, the sedative effect is greater than is compatible with a proper activity of the functions. The skin is locked up, the circulation is arrested, its proper distribution disturbed, partial congestions arise with indigestion and costiveness; then it is a common saying, "the man will have the gout," and on any

cause of unusual reaction a fit does ensue. If due care is not adopted as the weather gets colder, the sedative influence of cold is progressive, and the gout in the extremities assumes more and more the retrocedent character; the organic congestion, the inflammation, or the asthma, &c., returns upon the invalid at the very time of a similar seizure the year before. I could point out numerous living examples of this process.

A course of disorder in some respects very similar is exemplified in nearly similar circumstances, when the invalid has suffered under the cholera and biliary fluxes, and chronic hepatic obstructions of an Indian climate, and comes home to this more cold and moist climate, to recruit the enervation occasioned by a long tropical residence.

The first effect is generally very favourable, partly from the benefits of the sea voyage, and the gradual manner in which the migration takes place towards this more temperate, cool, and bracing atmosphere. But by and by the sedative impressions of a cold English winter are too much for the enfeebled and irritable state of the habit to resist; the skin becomes dry and inactive, without perspiration; the liver, long subject to obstruction, is now affected with torpor and congestion; the bowels are confined, and the bile accumulates in large and unhealthy quantities in the first passages; then the head begins to feel affected, sudden fits of giddiness occur, with wind at stomach and indigestion, and the gout speedily invades. Perhaps such an invalid, feeling the chilling and torpefying effects of the cold, betakes himself to a town residence, and carefully shuts himself up within doors, more fearful of the cold air without, than of the half-suffocating atmosphere he breathes in his close air-tight chambers within. In this situation he daily loses more and more that healthy energy of the brain and nervous system on which depends the whole functional actions of the frame. He gets more and more susceptible to the cold; and although he hardly stirs out of doors, ex-

cepting to pay an occasional visit, or make one at a dinner party, or attend to social engagements with his friends, and then taking the utmost care to protect himself against the weather, yet he is sure every now and then to suffer severely from exposures of which he was entirely unconscious at the time. This man takes little exercise, breathes a most impure mephitic air, crams his stomach well at dinner (his only or chief enjoyment), buries himself up nightly in a well-curtained bed, feels himself languid, drowsy, unrefreshed, nervous, low-spirited, flatulent, and affected with many other uncomfortable sensations in the mornings. The circulation comes now to partake in the disturbance of the functions ; it is habitually directed to the head in excess. The gout, if he has had it, becomes more and more abortive in its efforts to seize the old place in the feet ; it rises towards the knees or elbows, or threatens to attack the stomach. The invalid in this state is living with a sword suspended over his head by a hair. After some exposure to the weather and a full dinner, perhaps the brittle thread snaps, and he is in a moment in the convulsive struggles of apoplexy, or finds his constitution a wreck under paralysis.

It is the progressively increasing sedative effect of our English winters, that Indian constitutions have so much cause to dread ; and if due means are not taken to maintain the vital energy of the frame, it becomes more and more subject to the effects of cold each succeeding winter. By whatever degree the constitutional powers may be reduced, or the soundness of the internal organs impaired, the influences of climate gain a proportional ascendancy. In all weakened constitutions, with any existing obstruction in the important organs of life, there is always a greatly diminished power of generating animal heat : at all events the temperature of the body is more easily disturbed by changes to cold ; insomuch indeed, that the power of resisting exposures to cold and wet uninjured, has been

proposed by physiologists as a test of constitutional soundness and vigour, and it is not often a fallacious one. Extremes of heat, however, are as ill withstood by weakened habits as of cold, the nervous system acquiring that morbid susceptibility, which is unable to withstand the stimulus of heat without much febrile irritation, and a disturbance of the whole functions. Whence it is well known that apoplexy is not unfrequent in very hot weather as well as in cold; and there are gouty invalids, who suffer in the most distressing degree from summer heat.

Extreme cold therefore produces such a decidedly sedative impression on the weakened constitution, as is incompatible with a healthy sensibility of the nervous system, and a proper activity and equal distribution of the circulation. The whole external parts of the body have the vital heat and actions arrested, and the effect is communicated on the internal organs by direct sympathy. There is a point beyond which this effect cannot proceed, without creating a disturbance of the functions of life of the most serious nature.

A climate or season, on the other hand, too warm and enfeebling produce an equivalent effect in a different way, exhausting the nervous energy, and producing that irritability of the frame, which is incompatible with a healthy equilibrium of the functions. In this susceptible condition the secretions are abundant, and liable soon to become morbidly acrid and irritating, if not duly carried off. Whence the bile and feculent matters, if retained, produce such a decided and severe irritation of the susceptible coats of the bowels as to create inflammatory sensibility, and even ulceration, before they work their way through the canal. The depression of the powers of life, incidental to this affection, are well understood.

A climate, therefore, of a medium temperature, is always the most suitable for enervated, impaired constitutions. But if such a climate be subject to constant vicissitudes,

and especially to prevailing moisture, the constitution fluctuates from health to disorder, with every change of the weather; it becomes in fact a living barometer. Steadiness of temperature and dryness of atmosphere are as important requisites as the mean degree of warmth. Of these facts every gouty invalid may be sufficiently aware, by watching his own personal experience. The susceptibility to atmospheric impressions remarkably corresponds with the tendency to gout.

Some curious practical observations strikingly corroborate these remarks. In cold countries gout is comparatively rare, and is almost exclusively confined to the opulent classes: persons, in fact, who after having reduced and impaired their constitutions, possess the means of adding to their comforts as the susceptible state of the constitution requires, in order to secure them against the impressions of a rigorous climate, and the serious consequences which exposures to it would entail. There gout is unknown amongst the poorer classes. Medical men tell us this is owing to their temperate, abstemious habits, and their active engagements. It is not so. For in England the poor, the temperate, and the active are often seized. But the truth is, in a cold, rigid climate, he who has reduced his constitution to the point of enervation, rendering it liable to gout, and has not the means of increasing his comforts and care, corresponding to his delicacy of frame, soon falls a sacrifice to the other prevailing diseases of such a climate—asthma, consumption, liver disease, apoplexy, hydrothorax, diabetes, congestive fever, &c.

Weakened, impaired constitutions, who escape these maladies, are generally such as by prosperous circumstances enjoy all the comforts and indulgences of life, which money alone can command. Hence the proverb—“ You are getting rich when gout invades your domicile.” I have known not a few gouty persons, whose freedom from other more serious maladies seemed to have been obtained en-

tirely by the superior comforts and enjoyments which wealth put in their power, and who, upon a sudden reverse of fortune, have become spare, care-worn, chop-fallen, unliedged in form, with every symptom of a broken-up constitution, speedily ending their misfortunes and sufferings in the grave.

“ Abstinence from animal food and bodily labour,” certainly does not and cannot cure such persons of gout, excepting in the way just mentioned. And why? You take away that support which their weakened, atonic habit requires; you add another depressing cause, labour—what ought to result? Sinking of the powers, and death:—and so it happens.

A man, however, whose organs are on the whole sound, and who has the gout from laziness, from confinement to close air, from sensuality, indigestible diet, and other causes enervating and pampering the frame, may certainly retrace his steps with advantage. Let him use simple diet, resort to pure country air, bridle his passions, and take active exercise proportioned to his strength, and he thereby may doubtless escape the gout, as many others have done before him; he acquires strength of constitution, and that hardiness which resists atmospherical impressions. But this plan will not suit in all cases; and it assuredly will not be effectual in any but by accident, unless that insidious and most influential agent, climate, be constantly studied. The proof is obvious. In climates not rigorous, but subject to moisture and vicissitudes, as for instance England, gout frequently invades the poor and such as use low diet, who have in fact no luxury in their power, and are given to laborious habits. The explanation is not generally difficult. The energies of the constitution have been impaired by certain excesses, it becomes subject to organic congestion and functional obstructions by unavoidable exposures to a damp, variable climate. These go on for years preying upon the health, in form of chronic dyspepsia, hepatic obstructions,

ultimately complicated with determination to the head: but the invalid so affected can withstand this climate in its severer changes on fewer comforts and artificial aids than a person similarly affected in a more rigorous and northern latitude. In lieu of those more serious maladies peculiar to such a situation, they become gouty. Hence it is that in England we so often have "a poor gout as well as a rich." Most people of course prefer the rich: but if a man did not acknowledge the poor species, he would be charged with ignorance; so easily are people satisfied they understand a thing, because they can give it a name "decipimur specie recti."

If gout had been more accurately traced to its remote causes, and the influences of climate in assisting to engender this peculiarity better understood, we should have no difficulty in accounting for its seizing the poor as well as the rich, under given circumstances.

12. *Of errors in diet as disposing causes of the gout.*

The general observation, that persons about to fall into gout are prone to inordinate eating, and particularly on the borders of a fit when their unaccountable and ravenous appetite is for the most part indulged to excess, has misled certain writers on this disease into very loose and unsatisfactory conclusions as to its immediate origin. These authors appear (very naturally, it is true) to have mistaken the effect for the cause, in presuming upon a plethora so occasioned being the source of the gout that follows: whereas the craving for food in such circumstances is plainly a consequence of the gouty disposition, and is symptomatic of gouty irritation at the time, together with an atonic state of stomach, and a general collapse and depression of the constitutional powers. And this is further obvious from the fact, that a fit of gout will take place when this unusual craving for food has not been indulged

as well as when it has. That excessive eating habitually does sometimes materially conduce to the gouty diathesis appears very probable; but the conclusions usually adopted, as to the mode in which the effect follows the cause, are not legitimate, or indeed sufficiently precise to meet common apprehension. A few observations on this point shall therefore now be offered.

The injurious influence of errors in diet, in contributing to the gouty state, we conceive to be chiefly exerted on the organs of digestion themselves; and that the habitual use of certain articles of diet, whether from immoderation in quantity, or from something noxious in their quality, *is calculated* to impair the nervous tone and functions of the stomach and digestive organs, is a point which universal experience demonstrates. This effect, in gouty cases however, more often depends on the circumstances in which these errors are committed, than on any direct consequence which the errors themselves necessarily create. And we believe, that in directing our attention to the other influences we have so fully considered as impairing and disordering the constitutional functions, the only satisfactory explanation is obtained, why such errors in diet *in some cases only* generate the gouty tendency, whereas in others they produce no such effect. Wherever the constitution has been much impaired by the causes we have described, all errors in diet produce their disordering effects in an increased degree; and unless in this relative view of the case, we shall in vain attempt to trace the gout to any uniform and specific consequence of such modes of diet as are usually blamed for causing it.

The direct effects upon the stomach, of the errors to which the disease has been attributed, may be thus characterized.

1. Over-distension and habitual oppression of the powers of the stomach by bulk.
2. Inadequate repletion.

3. Over-stimulation of the nervous sensibility of the stomach by quality.

4. Deficient stimulation.

5. Distension and relaxation, as by fluids in excess.

6. A certain peculiar influence on the stomachic nerves, the effects of which are sufficiently established, but the mode of which is not ascertained.

1. Over-distension, &c. 3. Over-stimulation, &c.

On these principles excessive eating is hurtful. Accordingly the gourmand as well as the debauchee have been, from the earliest period of medical records, noticed as peculiarly liable to gout, as the apparent consequence of habitual excess.

In the present state of society the same observation holds very generally. Excessive and luxurious indulgence in the good things of the table being very often the habitual practice of such as fall into gout. This luxurious habit is partly owing to daily temptation, with the want of self-denial; and partly to that extraordinary appetite, to which enervated and bilious constitutions are often subject.

Particular habits and professional occupations requiring long fasting; excessive and long-continued mental or corporeal exertions; particular states of the weather; idleness; peculiarity of constitution or of mental temperament; the depression and sense of sinking so incident to nervous people,—these are the ordinary provocatives to excessive eating. Add to which the exhilarating tendencies of social and convivial intercourse; the incessant whet of abundance and variety daily placed on the table, and the influence of example in the case of those who seem to enjoy and do justice to every delicacy set before them,—and who is there, placed in such circumstances, who would or could refrain, merely because his physicians assure him that the gout (an evil he never yet experienced) is not far off? As for what is laid down in treatises on the disease, it is only

he who is driven by his tortures to consult them, who can be supposed to pay any attention to their precepts. But even he is apt to forget both his reading and his sufferings, when temptation, and appetite, and example, and the hope of impunity for this time at least, seem to invite indulgence.

Excess in spirituous, fermented, and vinous liquors, almost always coincide with gluttonous eating. These not only weaken the stomach by over-distension, but in a peculiar manner impair its nervous powers when resorted to in excess.

Fluid food in superabundance relaxes and distends the stomach, and weakens its tone (see 5); whence soups and slops, and quantities of porter, &c. largely and habitually used, are most injurious to weak stomachs and nervous habits.

When food is taken in too great frequency to permit due intervals betwixt meals, the stomach, being constantly over-stimulated, ultimately loses its tone.

We shall corroborate these remarks by a few medical testimonies.

Sydenham observes, "The gout most commonly seizes such old men as have lived tenderly and delicately, allowing themselves freely banquets, wine, and spirituous liquors." And again: "nor does the said voracity or full feeding so frequently (though it does often) occasion the gout as the immoderate and mad drinking of wine."

In Heberden's time it was generally believed that gout was produced by wine and spirituous liquors. "I have seen," says he, "several intoxicate themselves with strong liquors for two or three days together, on the presumption that they wanted a gouty fit, and that this was a proper way of procuring one. Now a long course of intemperance and debauchery probably *disposes a man* to this dreadful disorder, but an immoderate quantity of inebriating liquor is more likely to oppress than assist the powers of nature

under the gout." "Let them consider that a free use of wine and spirituous liquors peculiarly *hurts the stomach* and organs of digestion, and that the gout is *so bred and fostered*."

Dr. Lathan, among the causes of gout, enumerates "in the very foremost rank that most pernicious of all possible habits, the use of vinous and spirituous liquors. During this habitual and pernicious practice, which produces various diseases, the indulgence with respect to food determines it rather to be gout than any other. The stomach *losing its energy*, imperfect digestion ensues."

Darwin insists particularly on abstinence from fermented liquors as the sure preventive of gout. "In respect of the pre-remote cause or disposition to gout, there can be no doubt of its individually arising from the potation of fermented or spirituous liquors in this country."

The following remarks by Mr. Parkinson are much to the point. "Indigestion, produced either by the *quantity* or quality of aliments may be placed among the most active of the occasional causes of this disease. Observation has repeatedly marked the connection between *gout* and an *impaired state* of the stomach. Intemperance in the use of spirits cannot but be regarded as one of the occasional causes. This pernicious practice, as far as respects gout, appears to act in a twofold manner: 1. By disordering the functions of the stomach, and occasioning indigestion, it gives rise to gastric acid. 2. By impairing the *energy* of the *nervous system*. Numerous instances occur, where persons devoted to the use of spirits have been perfectly free from gout until after a debauch in which wine or punch has been taken freely." "The free use of wine and of other fermented liquors is one of the most obvious and powerful occasional causes of gout."

Dr. Sutton, who speaks from personal experience, regards the "use of fermented liquors as peculiarly concerned in the production of gout." Although he admits, that

“ larger quantities of nourishment than necessary fill and debilitate the stomach, *impairing digestion*,” yet he is of opinion, that “ more harm has been attributed to food in producing the gout than it really is entitled to.” In this I agree perfectly with him. I am convinced, that more is due to the circumstances in which food is taken than to the mere quantity eaten.

Dr. Cadogan, a sensible writer, after a long philippic on the intemperance of the English, to which he attributes the frequency of gout, observes: “ *inordinate stimulation* of the stomach by excesses in *animal food and wine*, necessarily lead to indigestion, with all its attendant evils. This is no sooner alleviated by temporary abstinence or medical means, than the individual relapses into excess; whence at length an enervated stomach and deficient appetite, requiring pickles, cordials, tonics, and other artificial provocatives to whet the appetite beyond the powers of digestion; and then gout is the natural consequence.” It may be here asked, whether it is more natural to suppose the gout to arise in such cases from the pickles and other stimulating and irritating ingesta, than from the mere quantity of nourishing food that is eaten. It is also worth inquiry, whether, when the stomach is in such a state as to require such provocatives of an appetite, there is not cause sufficient for the gout, whether the food be taken or not in excess.

Dr. Johnson blames justly “ full diet, particularly of animal food, the intemperate use of fat and oily meats, ragouts, high-seasoned and salted viands, and all kinds of aliment difficult of digestion; the abuse of vinous, spirituous, and fermented liquors. Scaliger and others accuse cheese of disposing to gout. The same has been said of certain wines, especially light wines. In this country champaign peculiarly predisposes to and excites gout; and also the more potent ales.”

Dr. Scudamore regards, among the pre-disposing causes,

"animal food. This when taken in excess of quantity weakens the stomach by distention, and stimulates and oppresses the whole digestive process beyond its healthy powers. In the form of high-seasoned dishes, it is a cause of morbid excitement, induces a false degree of appetite, so that the quantity sufficient for several meals is often comprehended in one alone." "This," he conceives, "lays the foundation of a *plethoric state*; but in order that the gout may be excited, the influence of fermented liquors must be super-added;" and these he elsewhere considers hurtful by inducing the said plethoric state. The celebrated Brown makes a remark militating against this view, which seems to me no less pertinent than sound. "Is a person liable to gout, who has for twenty years undergone an excessive stimulation (by food), to be reckoned fuller of blood, about the fortieth year of his age, or after this, and more vigorous, either than another gouty person who has lived lower, or than himself, ten or twenty years before?" We can see no reason why he should. Are there not hundreds, who go on for years in full luxurious living, without ever knowing what gout or other inconveniences usually attributed to plethora are? Setting aside the plethoric doctrine entirely, therefore, we would say there is a state of the digestive organs, to which impaired constitutions, at a certain period of life, and in certain circumstances, are subject, in consequence of which, full living, animal diet, wine, and malt liquors, no longer agree; in which excess in these good things of life oppresses the stomach and deranges the whole constitutional functions, and, in short, occasions gout. Our query now is, what state of the digestive organs constitutes this peculiarity? This we shall show hereafter.

"Of strong liquors," Dr. Scudamore observes, "wine is the most injurious. The use of raw spirits destroys the appetite, weakens the stomach, and prevents repletion. Of wines, champagne, bad claret, and new port, are the most

injurious, occasioning acidity; malt liquors, especially porter, are also productive of the disorder."

Farther medical testimony would be superfluous; enough has been advanced to show the general and decided impression, that excessive repletion of the stomach, with rich stimulating or indigestible food, and with stimulating or acescent liquids, is frequently and peculiarly hurtful in contributing to the gouty state of constitution. I agree with the authors above quoted, in the matter of fact, and could of course without difficulty adduce numerous examples, showing how often indigestible food, acid liquors, excess in eating, and in wine, &c., have been the occasion of severe fits of gout. But as to the mode in which their injurious effects produce this disease, I differ entirely from the plethoric advocates. And that I am warranted in so doing, appears sufficiently from what I am about to advance.

2. Insufficient distension or stimulation of the stomach, as in habitual abstinence, when the food received is inadequate, in quantity or by quality, duly to excite the nervous and digestive actions of the stomach, has not unfrequently been found to dispose to gout. The same consequences have arisen from food not possessed of properties sufficiently nutrient and stimulating. Very fluid or vegetable food sometimes has been found to induce the gouty disposition, and is peculiarly hurtful when that habit is already formed.

This observation is very important, being founded on facts directly opposite to those just adduced on authority so varied and extensive. It puts a decided veto on the plethoric doctrine. Let us first establish it by reference to authorities.

Sydenham, whose accuracy of observation has never been surpassed, remarks, "The gout does not only seize those that are corpulent, for sometimes, though seldom, it seizes *thin folks*." Again, after noticing certain debilitating causes to which they have been exposed, he adds, "More-

over they have great appetites, and have immoderately drunk spirituous liquors, and afterwards of a sudden *fell to thin and cooling liquors.*" Again: "A mediocrity is to be observed in meat and drink, so that neither more nourishment be taken than the stomach can digest, lest the disease should be heightened by it, nor on the other hand must the parts by too *much abstinence* be defrauded of that proportion, whereby the *strength and vigour* ought to be sustained; for, by so doing, they will be *more weakened*; for *either is alike hurtful*, as I have frequently found in myself and others." Further: "Milk diet with bread has done more good to many than any other remedy, as long as they kept exactly to it; but so soon as they returned to common diet, though of easy digestion, the gout returned *more violently* than before, and kept them *longer*."

Low living, therefore, according to this venerable author, may prevent the paroxysm for a time, but it rather increases the constitutional tendency to the disease; "for by being wholly unsuitable to the original cause of gout, *viz.* the *weakness of the ferment and concoctions*, it is much more injurious than beneficial." Thus distinctly alluding to atony of stomach and general debility so occasioned.

Heberden remarks, "Gout is created by intemperance, or arises from unknown causes, sometimes found in the *sober and abstemious*."

Cullen reckons "a sudden change from a very full to a *spare diet*." Again: "Animal food disposes to the plethoric and inflammatory state; vegetable aliment of the lowest quality is in danger of weakening the system too much, by not affording sufficient nourishment, and more particularly of *weakening the tone of the stomach*." And again: "if abstinence from animal food be entered upon early in life, it is both safe and effectual as a preventive; but if not till the constitution is broken by intemperance or decline of life, low diet is in danger of bringing on an atonic state;" and farther, "it is well known that several, who by

abstemious living have escaped gout, have on returning to their former living, had the disease return with as much violence as before, or in more irregular and dangerous forms." It appears clearly, by these observations of this eminent writer, that the gouty diathesis is frequently increased by a low and weakening diet.

Dr. John Brown is still more decided. Speaking of the debilitating causes which engender the gouty disposition, he says, "The following are particularly hurtful, *abstinence, vegetable food*, the hurtful effects of which are in proportion to the imbecility of the matter which composes it." What is more interesting still, he adds, "my own gout came on at the thirty-sixth year of my age, after *five or six months low living*. It returned not again till betwixt five and six years after, *because* all the intermediate time I had been *well supported*; and this second fit was ushered in by *low living* immediately *previous to* it, for near the same length of time as before the first fit."

"The farinaceous substances," he adds, "are by no means safe. A mess of porridge with small beer, taken over-night, would bring on a fit of gout next day. The juice of turnips, cabbage, pease pudding, and pease-soup, have the same effect. When used with a good solid meal of meat, I have always found them innocent."

These references are quite decisive as to the unfavourable effects of relaxing, unstimulating food, and abstinence in gouty habits. If facts were wanting still farther to prove, that inadequate and innutritious diet weakens the stomach, and assists at times in laying the foundation of the gouty diathesis, they might be supplied in the greatest profusion and variety. Instances of gout occurring in the case of those whom poverty, necessity, or erroneous conceptions of the nature of their malady, have induced to adopt an abstemious system of living, have been so frequently observed, as to have introduced that very convenient and most sagacious distinction—the *poor gout*, and *the rich*.

A lady possessed of an extremely gouty constitution, has not for years been able to eat above an ounce or two of animal food daily; has never used malt or spirituous liquors; and has lived most sparingly.

A young man, aged thirty-five, to whom I was lately called, has also been remarkably temperate in his living.

An old gentleman of a regular and temperate habit, has been for years a martyr to gout. He adopted a milk diet with a view to cure; at first with some benefit, but very soon the disease returned worse than before. He is now using animal food freely without any attack.

We shall not here advance more cases, but merely state, that in the works of various authors, instances very similar may be quoted. The concurrent experience and observation of all accurate inquirers establishes the point, that the gouty disposition is not unfrequently acquired by those who pursue a low and insufficient system of diet. And that, in a majority of cases, a gouty habit already existing, will be much aggravated by the abstemious plan.

It appears, indeed, that in proportion as the constitution is reduced in vigour by other causes, especially bleedings, sensuality, impure air, &c. &c., the depressing effects of a lowering abstinent diet are the more felt; and the necessity for food, in unusual frequency, and of a nutrient and stimulating quality, is the greater. The stomach, participating in the weakness of the nervous system, requires to be more frequently and often more copiously supplied with solid nutriment, to maintain that organic tone and activity which is necessary to a healthy state of its functions. In such weakened habits accordingly, abstinence beyond the usual period produces a torpor of stomach, cold flatulence, and depression of the general strength in a remarkable degree. Habitual privation from insufficient food, is in like manner attended by symptoms of great nervous weakness, general irritability, and a disposition to collapse from very slight exposures to climate; this of course followed by reaction, and disordered circu-

lation, whence a constant remittent fever ensues, with a tendency to organic congestions, and under certain circumstances gout.

We have been told, it is true, that animal diet disposes to inflammatory diseases. In certain peculiarities of constitution it certainly will, if indiscriminately used. But in the very same circumstances, the consequences of a lowering system are great nervous weakness and organic congestions, and often gout or worse: so that the invalid, so long as he pins his faith to those who doctor him by diet alone, has just the choice of the two evils. If he would turn his attention, or get it directed for him, to the existing morbid peculiarities of his habit, and the other causes of disorder to which he is exposed, he would find it of much less consequence what mode of diet he adopts.

In drawing our conclusions, how it happens that habitual over-repletion, and excessive stimulation of the stomach by gormandizing and debauchery, induce gout; and how also deficient repletion, and the want of duly nourishing food and stimulants, produce the same result, we should say, that they both, although on different principles, weaken and impair the nervous tone and functions of the stomach; the one produces what Brown would call direct, the other indirect debility. The one acting by exhaustion, over-excitement, and undue expenditure of energy; the other by insufficient stimulus and excitement.

This is the only consistent explanation of the effects of these opposite modes of diet, in conducing to the gouty habit. It is for the most part only when acting in concert with other enervating influences, and operating on a constitution already impaired, that either excess may be considered to accelerate the gouty tendency. Much too great stress has been laid on the influence of such errors in diet. When other disposing causes peculiarly operate, the gout will come whatever system of diet has been adopted, as may be testified by innumerable examples. Guarding against either excess is all very prudent; but moderation

alone will neither be a preservative against gout, nor a cure for it, although excesses will both accelerate it, and aggravate it when it arrives.

Of sudden changes from full diet to spare, and from abstemious living to luxurious repletion.

That changes of this nature have frequently been followed by gout, is a fact well established; and it is not difficult to account for on the principles above laid down. When a man has been long accustomed to full generous diet, with animal food and wine, either in abundance or in excess, the stomach, by a gradual process of constant repletion and excitement, at length becomes accustomed to the excess, and for a time does its duty very well. But if the constitution from other causes becomes impaired in its nervous energy, the stomach, participating in the weakness, no longer is capable of withstanding the excess, and this undoubtedly is one way in which gout arises. Again, if the accustomed stimulus of wine be withheld, while the full diet is continued, the stomach, long accustomed to the excitement of wine, is incapable of its digestive functions without; and in these circumstances the food eaten lies undissolved, and oppression and indigestion ensue. Or if both the wine and the strengthening diet be suddenly withheld, then the stomach, habituated to their stimulus, cannot act on food of a more imbecile, innutritive quality, and falls into a state of torpor and inactivity. Whence great nervous debility, disordered digestion, and often gout upon the slightest exciting cause.

Again, if the stomach, long accustomed to spare and innutritive diet, is all at once subjected to a full and substantial animal diet, with wine and stimulants, the excitement is more than its previous state of sensibility and functional actions can bear; it is over-stimulated and oppressed, the digestive process is deranged, with a general excitement of the whole nervous and circulating functions. Under certain

circumstances, as shall be shown hereafter, the gout is a natural result of this extraordinary excitement. So far as the stomach is concerned in that evil, it is a state of oppression and indigestion, which is the immediate consequence of the change.

A habitual practice of over-repletion, after habitual abstinence, is merely the supply of an excessive mass of food and stimulation, in relation to the existing power of digestion, and the morbid state of the functions which ensues is inevitable. How much more must the effect take place, when, as often happens under the previous abstemious diet, the biliary system was in a state of obstruction, and the bowels habitually confined, and the individual subject to other causes impeding and disordering the functions, as impure air, indolence, mental over-exertion, &c. &c.?

It is plain that all sudden changes in the mode of diet are to be avoided; and in proportion to the impaired state of the stomach, and of the functions generally, so are these changes likely to be detrimental. The sound, unimpaired constitution, whose functions are in a capacity of healthy exercise, may adopt almost any change with impunity. There is a corrective power, by which the injurious effects are readily obviated. Not so that frame which has been weakened and disordered by the various causes already described. In this case, every unusual or sudden change of habits or of diet is liable to occasion a disturbance of the digestive functions, which brings with it a series of morbid consequences. Indigestion in a weakened, irritable, nervous subject, is very different in its effects on the constitution from the same disorder in a constitution otherwise sound. The same may be said of the immediate effects on the stomach of diet, either imbecile or inimicent, or too sparing in quantity. In tracing gout, however, to changes of diet, either from full to spare, or the reverse, it is necessary always to take other coincident circumstances

into consideration, otherwise we shall in vain attempt a satisfactory explanation of any individual case.

6. A certain peculiar influence by certain kinds of diet on the stomachic nerves may be considered as tending to occasion the gouty state.

It is not easy to ascertain the exact mode in which this influence is exerted. It is better to refrain from speculating on the subject, and to rest content with mere statement of the facts as established by observation.

To the question, what articles of diet are found peculiarly hurtful by experience to those disposed to gout, we answer —

The habitual use of acid beverage is peculiarly conducive to gout. All acids, whether the carbonic, as in porter, champagne, soda water, &c., also certain vegetable acids, as that in cyder, perry, light new wines, oranges, &c. &c. act very unfavourably on the stomach in cases of nervous atony. And we remark, that the injurious effects are always greater in a cold moist climate; in winter; in constitutions weakened by bleeding; or in stomachs directly impaired by excesses. Let us adduce medical testimony on the point.

Mr. Parkinson insists particularly on the tendency of acids to generate gout when received into the stomach. Although it is impossible to go along with him in his pathological speculations, which are too chemical for the physiologist to receive; he must be allowed due credit for accurate observation of the facts. "With a rapidity difficult to explain," says he, "is the taking of vinous or acescent substances into the stomach succeeded by arthritic pains, and by the formation of sabulous concretions. Within a few hours after wine, gout often ensues; and sudden and severe fits of gravel after wine or stale beer. Wine disposes most to gout; cyder and low new wines to gravel. Beer, unless when acid, to neither." He quotes Dr. Huxham's authority as to the prevalence of gout in

Devonshire, a cyder county: "ibi enim arthritis morbus est endemicus et maxime communis." The Germans, who use acid wines freely, are also very liable to gout. Attacks of gout frequently follow speedily the use of acescent liquids. He however vindicates beer and porter, unless stale; and quotes Cadogan as to things called acescent, and therefore inimical to the gout. "Sweets of every kind, puddings, cakes, pastry, creams, confections, every thing made of flour, especially things fermented, and bread in particular; also all seasonings, stuffings, force-meats, and compound sauces, the bane of all wine."

Other writers have noticed in a particular manner the frequency of gouty disorders amongst those who are accustomed to acid or acescent liquids as a beverage, or who habitually indulge in those kinds of diet which are apt to prove indigestible and to turn acid on the stomach. It is plain, however, that it is only when such errors are committed by persons whose digestive organs are in a particular state of derangement, and whose constitutions have suffered from the various causes detailed in this treatise, that the gouty disposition is thereby excited; for numerous individuals are met with, who indulge without restraint in these very errors without any evil consequence. Whereas, in cases where from other causes the gouty tendency has been already formed, the slightest deviation from temperance, and from circumspection in the choice of food or beverage, is almost sure to be followed by a gouty fit.

The hurtful effects of indigestible and acescent diet, therefore, will be considered with more propriety under the article, *exciting causes*.

We only remark, that whenever the stomach is in that state of nervous atony peculiar to the gouty, the reception of acids, or the presence of acidity, interrupts and deranges the whole digestive functions, and contributes materially to accelerate the gout. Almost every article of food of an indigestible or irritating nature, whether by its direct effects

on the morbid stomach, or indirectly by imperfect assimilation and the generation of flatus, or of acid, acrid, and putrid products, thereby disordering the gastric functions, is also productive of the same consequences, especially in conjunction with other causes operating at the time. Of these causes, the co-operation of climate along with errors in diet is perhaps the most detrimental. (See climate.)

The DISEASES which DISPOSE to GOUT.

This is a most important inquiry, and to do it justice would require a volume. Disordered states of the constitution, or of individual organs, connected with the gouty habit, are so various, that we must confine our attention to those most frequently and most directly concerned in inducing that state.

Of these disorders, some are primary, others secondary. Sometimes they may be traced to the disposing causes already noticed, and sometimes they arise independently of them. It may however be asserted with some confidence, that by due attention to pre-existing morbid peculiarities of constitution, not only are some of the most unaccountable and perplexing features of gouty disorders elucidated, but much more sound and efficacious methods of treatment in individual cases are thereby furnished.

Whatever notions some entertain as to the inutility of inquiring into the past history of invalids, in judging of present disease, such notions are entirely inapplicable to gout. Without this, much misapprehension and uncertainty must always be felt as to the nature and severity of the attack, and curative measures may be often totally misapplied. And this indeed is one of the most usual causes of failure, both in the cure and future prevention of the disease.

No one, for instance, will dispute the importance, in

prescribing for a gouty invalid, worn out by frequent attacks, of ascertaining whether in former times he has been subject to acute inflammation; what organ has been so affected, and how often; whether the attacks have been slight or serious; what measures were necessary to subdue the disease; whether recovery was rapid, or slow and difficult, with protracted weakness; whether the constitution has been subject to chronic complaints of long standing in some important organ, or has been on the whole possessed of tolerable health; or whether in the course of years morbid tendencies have been acquired, which are now habitual, and subject to relapse on the slightest departure from a cautious and careful regimen. Could gout be expected to assume the same characters, and to be properly treated in the same manner in the case of him who has formerly gone into every excess, and him who has lived soberly and abstemiously, &c. &c.?

These and such inquiries form important grounds of distinction arising from the previous history of the invalid, which merit constant attention in our attempts to cure the disease, without which indeed we cannot hope to meet with success.

Without further remark, therefore, we shall consider the nature of the connection betwixt certain diseases and morbid tendencies of the constitution and the accession of the gouty diathesis.

Inflammatory diseases often precede, and may be considered to assist in creating the gouty diathesis.

In proof of this we refer to observation 14, page 14, and also to the details of cases, in many of which the occurrence of inflammatory attacks preceding the gouty habit is a striking feature. See also symptom 5, p. 30, for further evidence of our position. Dr. Parry's work may also be referred to.

Regarding it therefore as an established point, that in-

flammatory attacks actually dispose to gouty disorders, the query is how?

It may be averred without undue assumption, that inflammations dispose to gout, chiefly by weakening the tone and disordering the functions of the organ so affected. In this manner relapse is liable to occur on any exposure to the causes, which formerly occasioned the attack. A disordered circulation, and a determination of blood to the weakened organ, thus becomes habitual; the constitution becomes more tender and susceptible to atmospherical impressions. Bleedings and low diet, so often practised from necessity in inflammatory affections, tend much to reduce the vital powers. The more the heat and vigour of the body are thus reduced, the more subject is the circulation to disturbance in its due distribution by slight causes. The organ more particularly subject to inflammatory congestion, is thus by every successive exposure weakened and impaired in its functions. It no longer, as in times of former vigour, is susceptible of acute inflammation. But in the weakened state of the body, the reaction of the circulation connected with the congestive state to which it is subject by exposures, gives origin to those morbid sympathies by which other organs or parts are involved in similar disorder with the one primarily affected. The nature of the morbid action, thus propagated from one organ to another by sympathy, is different in different cases. But under the state of constitution produced by the various causes we have described, the gout often is that morbid action. (See the pathology of gout.)

In observation 16, p. 16, it has been already shown, that certain chronic affections of particular organs, consequent to acute inflammation, and sometimes arising gradually and insidiously without previous inflammatory action, under the names of winter cough, dyspepsia, bile, &c. &c., are often at the root of those sympathetic morbid actions in distant parts, which approximate to the nature of gout. And

these primary chronic disorders are sometimes of such a nature as to give no indication of their existence, but the distant morbid action arising from them by sympathy. A most interesting fact this, especially when applied to the explanation of gout, tic doloureux, flying pains, rheumatic affections, &c., as shall be afterwards shown.

Inflammatory and congestive attacks therefore dispose to gout, chiefly by weakening the tone and functions of the organ affected, and by increasing the susceptibility of the constitution to exposures to cold, &c. &c. They appear to operate also as the exciting cause of individual fits, and that chiefly by giving rise to a morbid state of the organic functions, connected with determination of blood, which is propagated in other parts on the principle of sympathy.

A few observations will now be offered on the peculiarities of gouty constitutions, depending on the individual organ which has been impaired by such attacks.

A congestive state of the lungs under certain circumstances disposes to gout.

On this subject, see obs. 17, p. 16; see also sympt. 9, p. 38. It appears that symptoms of disordered respiration, chronic winter cough, and expectoration, not unfrequently usher in gout. It is, I believe, only when pulmonic congestion coexists with the nervous diathesis, that gout results.

The same also may be said of asthma. (See obs. 18, p. 16.) Asthma, and indeed the spasmodic diathesis, seems to depend for the most part on a peculiar state of the nerves, occasioned by determination of blood to the brain, and to the nerves of the part affected. The fact is remarkable, how often the man who is nervous, and subject to cough or asthma in winter, will have an attack of gout in spring, and get rid of his chest complaint; and in the ensuing winter again relapse to his asthma or cough, afterwards to the gout in spring. It would be highly satisfactory to be

able to trace these transitions from one form of disorder to another to assignable causes. I believe the revolution of the seasons, and the changes in the atmospheric heat and moisture, on a constitution highly susceptible to its impressions, are often the chief agents concerned.

Pulmonic congestion, as already said, chiefly engenders gout by being the origin of a local morbid action, which is propagated to distant and susceptible parts on the principle of sympathy. This state of the lungs is often not itself the primary disorder of the circulation, but consecutive to a similar congestive state of the hepatic and gastric vessels. In such circumstances, the cerebral vessels are subject to participate in the congestive state; and the person so situated requires only an exciting cause to bring on a fit of gout.

How much the impaired state of constitution occasioned by the enervating causes already described, favours the sympathetic communication of a congestive state from one organ to another, is shown by the fact familiar to most observers; how often, in such habits, congestion in one mucous membrane is communicated to another in a distant part. Dr. Armstrong has remarked the frequent occurrence of this in gouty constitutions, and numerous examples might be quoted.

A congestive and obstructed state of the liver most directly disposes to gout.

Of the frequency of obstructed liver, in connection with the gouty disposition, notice has been taken (obs. 21, p. 17); a host of cases might be adduced to prove the point. The symptoms described (p. 39), indicate this hepatic obstruction, and the gouty invalid is familiar with them. We shall narrow the inquiry by the following brief positions.

1. Where the liver is sound and regular in its functions, almost never do we find gout in any circumstances occur.
2. Yet every variety and degree of hepatic and biliary derangements occur where gout is unknown.

3. The occurrence of gout, therefore, seems to have a very direct and essential dependence on pre-existing disorder of the liver, but some further peculiarity of constitution must coincide.

In answer to the inquiry, what peculiarity of constitution is implied, we should say such a state of the general nervous system as is produced by the errors and excesses, or impairing causes we have described.

How in such constitutions does obstructed liver create the gouty tendency?

There are three classes of symptoms of disordered functions, which naturally proceed from hepatic torpor and obstruction.

First, the functions of the stomach, in digestion and assimilation, are immediately disturbed, as well as those of the alvine canal. Digestion is suspended, the food lies undissolved at stomach, which is filled with wind, acidity, and other morbid products; subject to nausea, hiccup, dry retching, eructations, and sometimes actual spasm. The duodenum also is distended, and spasmodically contracted on its contents, with weight and tenderness on pressure. The bowels are similarly affected: with rumbling noises, sense of weight, and uncomfortable fulness or tightness about the navel. The lower bowels also are locked up, with straining and bearing down efforts at stool, while the evacuations are sparing and difficult. We have sometimes also hysterical affections in the throat, a sense of fulness and choking, palpitations at the pit of the stomach, or pain there, and cramps in the limbs. When the alimentary canal is in this torpid, disordered state, the skin sympathizes, becomes torpid, inactive, dry, sallow, and subject to chilliness on the slightest exposures.

To prove that this is the case, the administration of medicine calculated to excite a flow of bile, and to evacuate the bowels, immediately restores the skin to a soft, smooth, and perspirable state.

Where, however, hepatic obstruction is permitted to continue, and its effects on the stomach and bowels are uncorrected, in these circumstances atmospherical impressions produce an unusual effect on the body. In daily experience we meet with very striking facts in illustration of this. On change of weather, for instance, one person shivers with the piercing cold, while another feels no inconvenience. Whence comes this? Difference of constitution, some say. Not at all: for the same person, at different times, is sensible of the greatest difference in his sensations. A severe exposure to cold or wet will occasion no inconvenience, while a much more slight exposure at another time, strikes a chill through the frame, with shivering, cold extremities, and great depression. Such extraordinary effects from exposures to the weather are familiar to some constitutions, and are generally found to precede in unusual degree acute or inflammatory disorders. One of the most usual causes of this inordinate liability to cold, is an inactive state of the liver and bowels, with consequent obstruction in the biliary and visceral secretions; and this creating a similar torpor and inactivity of the skin. Indigestible diet, cold drinks, wet feet, damp beds, are the most usual primary causes. And as the individual is unconscious of their injurious effects at the time, he often goes on habitually exposed to them, till the liver and bowels are involved in a degree of obstruction incompatible with healthy function. Whence bile and costiveness, &c.

It is in these circumstances that the disorders of the circulation already adverted to are apt to arise. In the depression of the powers attending this state of hepatic obstruction, and the torpid state of the surface and extremities, exposures to cold and wet repel the circulation in excess upon the internal vessels, at the same time producing a general collapse.

The individual feels a numbness, chilliness, and shivering, and instinctively seeks warmth. The constitutional

tendency to reaction after collapse is thus coincident with an external cause of excitement by heat. In the reaction that follows, the causes which depress the constitution continue; for heat, while it excites the circulation, and in some measure restores its equal distribution, does not rectify the original hepatic obstruction, or call into activity the visceral functions; on the contrary, by increasing the sensibility of the coats of the canal, the irritating contents there accumulated under the pre-existing costiveness create a highly irritative and spasmodic state of these viscera. In these circumstances, the organ more particularly surcharged with redundant circulation is excited to unusual sensibility, and a diseased action ensues, increased by sympathy with visceral irritation, and sometimes amounting to inflammation.

In tracing organic congestions and inflammation to their source, therefore, inactive liver will be found very often the origin, together with disordered digestion and costive bowels. As persons subject to acute inflammation in youth, and to organic congestion in advancing years, are peculiarly liable to contract the gouty habit when the nervous energies have been impaired, it will be found, that the same obstructed state of the liver and alimentary canal, which in former times preceded and originated these disorders of the circulation, whether arising from errors in diet, exposures to cold, &c., also invariably precede and attend the attacks of gout. This of course does not imply that gout and inflammation are the same in nature, but it appears unquestionably, that gout is a modified result of those hepatic and visceral derangements, which in other circumstances created inflammatory attacks, under the further peculiarity of constitution created by the various causes we have described.

The frequent, and indeed invariable, coincidence of this inactive state of the liver with the access of a fit of gout, has been remarked by most writers of accuracy, and by none more directly than Darwin. "The liver," says he, "is probably

affected with torpor previous to every periodical attack of gout." It is this torpor and obstruction of the liver, which, disordering the digestive power of the stomach, causes the food, which at other times proved light and digestible, to oppress that organ with crudities, flatulence, acidity, nausea, and eructations. The bowels also are inflated with wind and excited to spasmodic tension, so that obstinate costiveness and an accumulation of morbid and offensive bile take place. At this crisis it is, that the invalid, to use the expressive words of Sydenham, feels "oppressed and puffed up with wind, and then the fit thunders upon him." This distension of the bowels, from obstructed liver, Dr. Scudamore notices under the designation "abdominal corpulency."

This brings me to notice a third set of symptoms usually attending this state, and which may be clearly referred to obstructed liver—a peculiar aggravation of those disorders usually styled nervous. The animal spirits and energy of mind are greatly depressed. Hence from the earliest times, low spirits, hypochondria, suicidal despondency, and atrabilious melancholy, have been referred to the liver. To which add, a want of heat and sensibility in the feet, which are cold, numb, and torpid; chilliness, a sense of faintness and sinking frequently coming on, so as to overpower the strength; hysterical affections, a sense of choking in the throat, confusion, shooting pains, and weight in the head. Shortly after the feet and hands will seem to burn; a sensation is felt as of warm water pouring down the limbs; confusion, giddiness, and oppression at the breathing ensue; a perspiration breaks out suddenly and as quickly ceases; wandering pains are experienced, and a sense of anxiety, feverish heat, great restlessness, and sometimes sudden determination to the head, of the nature of a fit. These irregular states of heat and cold, attended with a long train of uneasy symptoms, will often become habitual; and the invalid will perhaps not obtain a night's comfortable rest for weeks together.

It is important here to bear in mind, that it is when the constitution has been impaired by the causes already detailed, that these nervous symptoms so directly ensue upon hepatic obstruction. It is an interesting fact in the history of gouty invalids, that when the powers of life have been wasted by excesses, and the energy of the brain impaired, and the circulation, partaking in the general weakness and irritability of the constitution, is disturbed in its healthy distribution from hepatic obstruction and such exposures as tend to repel the blood from the external and superficial vessels,—a strong tendency exists to determination of blood to the head; and this disposition invariably manifests itself previous to the occurrence of gout. Whence we conclude, that a very direct and essential link in the chain of connection betwixt the gout and hepatic obstruction is thus developed. Before inquiring more closely into this connection, it may be useful to take some notice of the dyspepsia to which the gouty are subject, and the share which the stomach and bowels have in inducing the gouty peculiarity.

Of dyspepsia or functional disorder of the stomach, as connected with the gouty diathesis.

That there is a certain progressive state of stomachic weakness and disorder, in the case of many dyspeptic invalids, which, unless arrested, is liable to terminate in the gouty state, is proven by daily and satisfactory experience. Proofs of this are unequivocally stated; see pages 18 and 41. The desideratum is to ascertain *how* and in what circumstances dyspepsia does assist in creating the gouty diathesis.

There are two disordered states of the stomach, which appear to me essentially to constitute the gouty peculiarity; first, a weakness of nervous power; and secondly, a congestion of the gastric vessels; and these two states of disorder co-existent.

With regard to the nervous power and tone of the stomach, this is impaired in various ways in the gouty.

Whatever causes tend to impair the general nervous energy, will affect the power of the stomach in a direct manner and peculiar degree; conversely, various causes directly applied to the stomach itself, impair its tone, and thereby affect the nervous power of the constitution.

Among the causes impairing the stomach, through the medium of the constitution, may be mentioned, impure air, *venus nimia*, mental over-excitement, bleedings, the passions, &c. &c.; and, above all, cerebral compression or congestion, cutting off the supply of nervous influence.

Among the causes primarily affecting the stomach itself, may be mentioned, errors in the quantity or quality of diet (see diet), debauchery, continued inflammatory congestion, &c. &c.

With regard to a congestive state of the gastric vessels, this also arises in various ways.

Whatever repels the circulation from the surface and extremities, will cause the gastric vessels to be overloaded with redundant blood. Whence wet feet, thin shoes and stockings, exposures to cold and damp, in various ways, will have the effect.

A torpid and obstructed state of the liver is often the cause of a turgid state of the stomachic vessels, by impeding free circulation through the *vena porta*.

A weakness of the general circulating energy, and a habit of sedentary inactivity, will occasion the gastric vessels to become overloaded.

To which may be added constant stimulation or irritation of the organ itself, whereby an afflux of blood in excess is determined towards it.

When the dyspeptic stomach is by these and other causes thus disordered, many of the symptoms described, p. 41, are present. The secretions of the organ are depraved;

acid is generated in abundance; the bile is acrid and irritating; the food received speedily ferments and is converted into gas; we have thirst, heartburn, nausea, eructations of acidity, or of acrid and bitter fluid; unusual flatulency; the organ being distended therewith, and irritated by its morbid contents acting on its sensible coats, is excited to a spasmotic contraction of its muscular fibres, with increased nervous sensibility; and thence arises that tenderness on pressure at the pit of the stomach, to which dyspeptic invalids are liable, always aggravated after a full meal, the stomach feeling oppressed and contracted, as if a cord were girt tightly round the waist. In this state, wine and other stimulants cause much uneasiness, with a sense of heat and acidity, and also affect the head with oppressive excitement and confusion; so that invalids in this state can hardly take a glass or two of wine without feeling the head much disordered. This fact indicates a more than usual sympathy to exist betwixt the stomach and the head. Persons who, in addition to dyspepsia, have also a determination of blood to the head, are particularly sensitive in this respect.

In constitutions impaired by excesses, a determination of blood towards the head is very apt, as observed p. 180, to arise in consequence of hepatic obstruction. The stomach being at the same time disordered, as just described, constitutes the exact complication which so often precedes the gout. How a fit of gout arises in such circumstances will appear in the sequel. We merely here observe, that it is atony or weakness of the nervous power of the stomach, from whatever causes proceeding, that constitutes the gouty disposition; and it is the farther coincidence of an occasional congestion of its vessels, arising from repelled circulation and from hepatic obstruction, from which an immediate fit of gout is to be apprehended. But this effect only does ensue in the still farther complication of cerebral congestion.

Having stated thus much, it may be proper to clear away some prejudices and pre-conceived opinions, which are apt to mislead into erroneous views of the subject.

There are some people, who, judging by the inordinate quantity of food they are capable of taking, will be disposed to deny that this weakness or atony of stomach is an essential peculiarity of the gouty diathesis; and some few are unexpectedly seized with gout, who were sensible of no extraordinary dyspeptic symptoms previously. These are only apparent, not real exceptions. For, in the first place, a very keen appetite and quick digestion often is met with, where the stomach is far from being sound and vigorous. For instance, after copious bleedings and long fastings, on recovery from fevers and inflammations, where the stomach is unquestionably very deficient in tone, we have often an extraordinary appetite. Nervous invalids, and especially those who are also bilious, are prone to inordinate fits of craving for food, which can hardly be appeased. That the same voracity should occur on the eve of a fit of gout, when the stomach nevertheless is, as the result shows, incapable of healthy digestion, is not more unaccountable. The fact seems to be, that when the stomach is deficient in nervous power, and the body at the same time reduced in strength, there exists a necessity for more than usual support; and this is indicated by an instinctive craving for food, and sense of sinking or emptiness, when the digestive organs are in such a state of disorder as to be incapable of converting it to its proper use.

Secondly. There are so many ways in which the gouty diathesis may be acquired, that corresponding difference in the exact order of the symptoms is naturally to be expected. Dyspeptic symptoms sometimes show themselves very early in the history of the invalid, the constitution being otherwise sound. On the other hand, the constitution may have been much impaired, by various excesses and hurtful habits, while the stomach having never been much

exposed to disordering causes, continues on the whole free from any marked symptoms of indigestion till the period of seizure. But as to the result, it plainly makes no difference whether enervation of the general habit precedes dyspepsia or is succeeded by that state; in either case, the gouty diathesis in its essential peculiarities ensues. Again, if we endeavour to refer the existing dyspeptic state of stomach solely to errors in diet, or other causes affecting the stomach directly, we shall be continually perplexed by the conflicting experience of different cases. One man will become dyspeptic and gouty under spare diet, another under full living and excesses: some from indiscriminate and gross feeding, and others under the simplest food imaginable. Those, who with so much grave confidence ascribe gout to plethora from full living and excess, must look rather foolish when a patient presents himself who has uniformly pursued a spare and simple diet, and yet is racking under the tortures of this cruel malady. The healthy digestive power of the stomach more often depends on causes affecting the general constitution than is at present admitted or supposed. When the stomach is in the state described, see p. 182, almost any diet, however simple, will disagree; much more, of course, that which is from its nature difficult of digestion.

While we do not overlook the injurious effects on the stomach of errors in diet and excesses, it is not an uncommon case, for instance in constitutions impaired in nervous power, for a congestive state of the stomach to be induced by exposures to cold and wet. Its functions are thereby very imperfectly performed; so that *whatever* diet is in use at the time creates acidity, flatulence, and all the symptoms of indigestion. But it more often happens, that errors in diet are committed, which by their nature greatly aggravate the existing dyspepsia; so that these two causes disordering the stomach mutually cooperate with each other.

The dyspeptic state becomes habitual, because it is

maintained by causes of continual operation; and when an adequate exciting cause further conspires, we have the gout as the product.

For example, to take an extreme case: a man lives in the most indiscriminate manner, partaking in every rich and indigestible article of diet that is set before him, and fearlessly commits excesses, both in eating and drinking, for a time with impunity. His stomach is sound, and his constitution vigorous, for nothing has happened to impair either, and he fears no evil. By and by, however, towards middle life, his continued excesses or hurtful habits of life come to tell on his constitution; it is weakened and pampered by indulgence; and his stomach injured in tone by over-repletion. He now finds his digestion much impaired in power and easily disordered; he becomes subject to bilious attacks, in truth to hepatic obstruction with its attendant symptoms; and whereas in times past he was regardless of the weather and seasons, he now finds himself no longer proof against exposures, but more and more delicate and susceptible. If he gets damp feet, or is exposed in rain or otherwise, he is sure to feel the effects; and no consequence is more frequent than a bilious fit, or a fit of indigestion, with some inconvenience in the head; and this legitimately to be traced to repelled circulation on these weakened organs by the exposure. He, however, without taking pains to discover the cause, no sooner recovers by a day's confinement, or abstinence, or medicine, than he reverts to his old habits of excess and careless exposures, despising caution and restraint. He makes no selection in what he eats; he takes little precaution to avoid the effects of the weather; his dyspeptic symptoms return and become habitual; his bowels are liable to constant costiveness; nervous symptoms increase; the head participates more than formerly; he is subject to confusion, drowsiness, giddiness, perhaps shooting pains in the head, and other marks of determination of blood to the brain.

And this is the exact condition from which, on some unfortunate exposure to its exciting causes, the gout invades.

We have here merely to trace his dyspepsia. 1. The stomach participates in the nervous weakness of the constitution. 2. Indigestible diet and excesses irritate that organ and impair its tone. 3. Cold and wet externally applied in this weak, atonic habit of body, repel the circulation in excess on the vessels of the liver and digestive organs. 4. The numbness and torpor occasioned by exposure of the surface and extremities to cold is communicated by sympathy to the stomach, the liver, and the alimentary canal. 4. Hepatic obstruction directly impairs the digestive power of the stomach. 5. In these circumstances the organ is incapable of healthy digestion, it becomes morbidly sensible, its secretions are depraved, its coats are subject to spasmodic contraction, it is distended with flatus and irritating products; and in this state of disorder other and distant functions participate by sympathy. It might be easy to show how various are the effects arising by sympathy from this primary disorder of the stomach, according to circumstances. Whatever organ or texture is either weakened or impaired in its functions by previous disease, sympathizes in a peculiar degree with the stomach. The effect of partial and transient fits of indigestion on the aspect of an ulcer is familiar. Also when a lung has been subject to inflammatory action, and is weakened thereby, it immediately will sympathize with the stomach. The same may be said of any other organ. The reception of indigestible food into the dyspeptic stomach thus becomes the fruitful source of multiform disorders in distant parts, according to the pre-existing constitutional peculiarity. In circumstances where the head is subject to a determination of blood, the communication of impressions by sympathy from the stomach to the brain is most immediate and direct. The consequences will be traced in the sequel.

So far as an atonic state of stomach and a congestive state of its vessels creates the gouty disposition, the following may be considered as the manner.

1. A direct consequence of impaired tone of stomach is a weakness of the brain and nervous system.
2. Another consequence is weakness and irregularity of the circulating actions.
3. Another consequence is, a tendency in the organ itself to disordered function, from errors in diet or excesses.
4. The consent betwixt the stomach and the feet occasions a more than usual susceptibility to disorder from exposures of the latter to cold or wet, when the stomach is weak.
5. The same may be said of the consent known to subsist betwixt the stomach and skin.

Many facts might be offered in illustration of these positions, and tending to show that these consequences are symptoms characteristic of the gouty diathesis.

Disordered functions of the alimentary canal, as connected with the gouty diathesis.

There are two modes in which the alimentary canal may become disordered in function: first, by articles of diet indigestible and irritating, or otherwise calculated to disturb the healthy action of the bowels: secondly, by causes affecting the constitution, whereby, either from an excess of blood being directed to the bowels, or from other causes, the healthy powers of digestion, assimilation, and evacuation are impaired.

In both these methods I believe that the disordered state of the bowels peculiar to the gouty may be shown to arise. The first view of the case is properly treated under the head *diet*. The second, a disordered state of the bowels of constitutional origin, here comes under consideration.

That state of the bowels which peculiarly creates the

gouty disposition seems to be chiefly a weakened tone of the canal. The bowels are weakened in tone by participation in the weakness of the constitution from causes already described; also by improper or insufficient food: also by excessive stimulation long continued, and other causes.

When, along with a weak atonic state of the canal, it is at the same time subject to a congestion of its vessels, then the gout may be expected to ensue, in circumstances otherwise favourable to its development. The process by which this condition of the alimentary canal usually arises in the case of gouty invalids, is somewhat in the following mode and order of occurrence.

Connected with an obstructed state of the liver, the *venæ portarum* distributed over the alvine viscera are subject to congestion. This congestive state occurs in greatest degree in parts immediately adjacent to the porta. When the stomach is so affected, the dyspeptic state ensues. When the duodenum is so affected, there arise imperfect assimilation and an increase of disordered bile, abundant flatulence, and other remoter evils. When the same congestive state extends to the iliac viscera and colon, the secretions of the bowels are disordered, mucus accumulates, the peristaltic movements are impeded, whence costiveness and an accumulation of fæcal matter. In the rectum the same condition is apt to arise by sympathy with the superior portions of the canal, and there ensue spasmodic contraction of the sphincter, difficult stools, painful tenesmus, ultimately ending in hæmorrhoidal discharges and piles.

The symptoms attending this congestive state of various parts of the alimentary tube have been already detailed, and are familiar to the gouty. There is felt unusual tension, oppression, and tenderness in the region of the liver, more especially in the course of the duodenum, so that if you press the individual under the right short ribs, he cannot bear it. He feels an unusual sense of weight in that

quarter, a sense of dragging at the breathing, and he often cannot lie on the left side without great oppression. He is much subject to bile, with nausea, sour eructations, unpleasant taste in the mouth, vomiting of acrid, hot, or bitter fluid; also flatulence, a foul tongue in the mornings, some feverish thirst, confusion, or giddiness, or headach. The bowels around the navel feel knotted and contracted together spasmodically, with some feeling of tenderness on pressure; uncomfortable fulness and distension of the bowels, as if blown out with flatulence, rumbling noises, also sometimes painful gripings, and for the most part obstinate costiveness, and hard, difficult, sparing stools.

This disordered condition of the alimentary canal is generally of insidious and gradual origin, being produced by the unconscious influence of exposures to cold and wet, damp clothes or bedding, wet feet, injudiciously thin clothes, &c., co-operating also with errors in diet; causes against which few people are sufficiently on their guard.

Wherever, from other hurtful causes, the nervous system has been impaired, the bowels are much more liable to have their functions obstructed in this manner; and when, either from external causes repelling inwards the circulation, or from hepatic obstruction, the vessels of the porta are overcharged with blood, the morbid state of the alvine functions just described is liable to occasion by sympathy a disturbance in the general circulation. Nothing, it is well known, so directly creates a febrile excitement of the circulation as costive bowels and a load of bile in the first passages. And as in youth and vigour costive bowels and obstructed liver, and a congestive state of the alimentary canal, frequently originate inflammatory and febrile disorders; so in after-life, when the constitution has been impaired by hurtful causes, and the nervous diathesis has been induced, the same obstructed state of the alimentary canal creates an unusual tendency to determination of blood to the head. The ques-

tion, how the gout arises under such circumstances, shall be discussed in the sequel.

We sum up these observations thus :

1. The alimentary canal participates in the weakness of the constitution when impaired and injured by excesses, &c.
2. It is weakened by errors in diet, and causes which habitually derange its functions; by irritation or over-stimulation, or other hurtful influences directly applied.
3. It is subject to torpor and obstruction of its functions by sympathy with a torpid state of the skin and feet, from exposures to cold and wet when the constitution is weak and susceptible.
4. The bowels are subject to sanguineous congestion when the *venæ portarum* and hepatic circulation are obstructed.
5. They are also subject to congestion, when the circulation is repelled from the surface and extremities by cold, &c.
6. In these circumstances the alimentary canal becomes morbidly sensible to irritation, incapable of healthy peristaltic actions, involved in irritative spasmodic tension, the fæcal matters destined for expulsion are retained, and become a fruitful source of irritation.
7. This morbid state of the alimentary canal involves by sympathy the other functions.
8. The circulation is the first function to partake in the disturbance; and this is affected, both as respects the degree and regularity of the vascular activity, and the healthy distribution of the blood.
9. As respects the distribution of the blood — the torpid state of the alimentary canal occasions a similar torpor and inactivity of the surface and extremities; whence unusual susceptibility to cold and wet; cold feet, chill skin, perspiration checked, and the blood repelled from the cutaneous

circulation; the congestive state of the alimentary canal is increased, and the blood directed in excess upon the other internal organs.

10. In these circumstances, a reaction of the circulation occurs, and the obstructed state of the bowels continuing as before, the irritation of the bile and other visceral contents is conveyed by sympathy on the heart and vascular system, increasing the reactive excitement.

11. In these circumstances the brain is subject to partake in the congestion occasioned by the previous repulsion of the circulation, and also to participate in the arterial excitement occasioned by the reaction and the sympathetic effect of visceral irritation.

Of cerebral disorder, as connected with the gouty diathesis.

From the various facts and observations that have been adduced, the inference seems direct and natural, that the gouty peculiarity of constitution depends directly and essentially on a certain condition of the brain, and that a correct and clear view of the relations of that organ to the other functions of the body, and a due estimate of the peculiar consequences arising from certain morbid states of the cerebral functions, furnishes the true key to the pathology of gout, hitherto so much an object of anxious research. If this view of the disease, so little dreamed of by those whom this disorder has so perplexed and baffled by its ever-changeable and unaccountable features, could be established on clear and substantial grounds, more would thereby be gained in the progress towards a sound and scientific method of treating the disease, than by all the attempts hitherto made at the discovery of a specific remedy for the malady.

The position, that gout depends on a certain state of the brain, is not a speculative and visionary theory: it is supported by a mass of concurrent evidence, which embraces

the whole history of the causes and symptoms of the disease, as well as by the effects of every remedial measure that has been attended with success.

That state of the brain in which I conceive the essential peculiarity of the gouty diathesis to consist, is, in the first place, a deficiency of the cerebral power, and secondly a congestive state of the cerebral vessels, and these two conditions being coexistent.

First, with respect to the cerebral power, we have already shown a variety of very influential agents by which this is impaired; and we have shown, by incontrovertible evidence, how often, on inquiry into the history of gouty invalids, they are found to have operated; and how, on physiological principles, those very symptoms which characterize the gouty diathesis, naturally result from their operation. We shall very briefly refer to these debilitating causes.

1. Years. After a certain period of mere existence, the brain loses its vital power, and cannot be restored; the susceptibility of the organ to usual stimulation and excitement is impaired; an imperfect and irregular exercise of the cerebral functions results; whence in old people mental hebetude and debility of body pervading all the senses and functions. How far this has to do with gout, see p. 88.

2. The brain is often prematurely exhausted and impaired in its vital energies by various causes, so as to engender the gouty peculiarity.

3. Excessive sensual indulgence is a most direct and influential means of wasting the vital power of the brain. See obs. 5, and p. 92.

4. Narcotic and spirituous liquors, habitually and largely used, also greatly impair the cerebral energy. How often this unfortunate habit of excess coexists with the gouty habit, needs no proof.

5. Hard study, anxious excitement of mind, intense application, and night watching, do also wear out the

cerebral power. See observations 9 and 10; see also cause 9.

6. The blood sent to the brain may be impure and imperfectly arterialized, and inadequate to maintain due vital energy of that organ. See cause 7.

7. Mere deficiency in the quantity or nutritive quality of the blood, arising from excessive bleedings or impoverishing diet, directly weakens the powers of the brain. See cause 10; also observation 15.

8. Any sedative, cooperating with the above causes, produces a much more decided effect on the cerebral power. In this way, cold applied to the surface of the body, from insufficiency in dress and exposure to a moist climate, habitually depresses the cerebral power.

Such are the causes usually concerned in creating that depression and impairment of the cerebral power, which ultimately terminates in the gouty state. Varieties, almost endless, occur, in the manner, degree, and complication in which their influence is exerted; some of which have been described in detail under the respective heads. Under all the circumstances and causes, whose influence we have described, however, one uniform result has invariably been recognized; *i. e.* a determination of blood to the head, supervening upon the derangement of the digestive functions, and the depression of the nervous energies, which paves the way for gout.

From this general fact, therefore, we are entitled to infer, that this determination of blood to the head has in some way or other an important, if not essential connection with the gouty state. In this inference we are strongly supported by the authority of Dr. Parry; that instructive writer having traced through a number of gradations those derangements of the circulation which precede the gout, and ultimately arrived at the conclusion, that gout is an effort of nature to rectify a previous disordered state of the circulation, in which it is directed in excess to the alimen-

itary canal and head. While we concur with this accurate observer in the matter of fact, that a determination of blood to the alimentary canal and head does uniformly in some degree precede and co-exist with the gouty peculiarity, we arrive at a different conclusion as to the manner in which the gout results from this pre-existing disordered state of these organs. We do not confound all impairment of the nervous system with a determination of blood to the brain, as that writer does. We do not blame nature in the business at all; but we state as a practical observation, that when the nervous energies have been wasted, enfeebled, and impaired, by the various causes described in this treatise, a determination of blood to the brain is very liable to ensue upon any congestive condition of the organs of digestion, or indeed of any important vital organ. And when this determination of blood to the brain in such a weakened state has become habitual, the whole peculiarities of the gouty diathesis manifest themselves. The gout which ensues, so far from being a salutary effort of nature to relieve pre-existing disease, is itself a diseased result of the existing morbid state of the functions, in precise accordance with pathological laws.

In endeavouring to demonstrate this position, we shall *first* show how determination of blood to the head arises in constitutions weakened and disordered by the various causes already noticed. *Secondly*, what effects on the cerebral functions arise from this determination of blood to that organ. *Thirdly*, how the gouty diathesis results from this state.

1. How a determination of blood to the head arises in weakened and impaired constitutions.

We have already shown in various ways, that when the constitution is weakened and impaired, by excesses or mistaken habits of life, sedentary pursuits, inflammatory attacks, bleedings, &c. &c. &c., it always is peculiarly susceptible to the impressions of cold and wet. This susceptibility

arises from the weakened state of the nervous energy, the languid irritable state of the circulating actions, and the defective animal heat.

The consequence of this enervated condition of the body in a damp changeable climate, such as England, is, that on any exposure of the surface and extremities of the body to cold and wet, the circulation is there suspended, and the blood repelled in excess on the internal vessels. In these circumstances, the hepatic and portal circulation are most directly subject to be overcharged with blood. A torpid obstructed state of the liver, with a congestive state of the stomach, duodenum, and the other viscera supplying the vena portarum, is the result. While, therefore, we have a state of universal collapse of the nervous and circulating functions, we have at the same time a direction of the circulating fluid in excess towards the digestive viscera, and a disordered state of the functions of the whole alimentary canal. If the stomach and duodenum in these circumstances is oppressed with heavy, indigestible food, the bile pent up in acrid unhealthy quality and excessive quantity in the first passages, and the presence of acidity, of flatulence, and other irritating products of semi-digested food, contributes still more to disturb the functions of the alimentary canal,—we can without difficulty account for the occurrence of a determination of blood to the head.

In the congestive condition of the vessels of the stomach, an unnatural susceptibility of that organ to irritation exists. The presence of irritating contents in different parts of the canal, excites unnatural contractions of the muscular coats. The distension of the stomach and duodenum by flatus, causes the coats of these organs to assume a state of spasmodic tension; in this the diaphragm and the whole membranes connected with the alimentary canal in some degree participate. The diaphragm in these circumstances is incapable of free descent into the abdominal cavity in the act of breathing; and accordingly the person in this state cannot

breathe through the diaphragm without oppression, uneasiness, and difficulty. By filling the chest with air in inspiration, however, the diaphragm is forced to a certain degree to descend; it presses upon the stomach, the liver, and the subjacent viscera; these are at the moment overcharged with blood, which is obstructed by the existing spasmodic tension. On each descent of the diaphragm, therefore, the aorta descendens and the abdominal arteries are compressed, and the existing obstruction to the free transmission of the blood is increased. But at this crisis the action of the heart not only continues as vigorous as before, but more so. For as a reaction of the circulation always succeeds on a pre-existing collapse, so soon as external warmth succeeds exposure to cold, the heart in this reactive state is unusually excited in its contractions; the blood forcibly projected by the aorta communis being prevented free exit downwards, must of necessity take the course of the ascending carotids towards the head and brain, where no impediment to free circulation is offered. If, therefore, in the reactive state succeeding the collapse arising from exposure to cold and wet, the blood is directed in excess towards the head, as a consequence of the existing congestion and obstructed state of the stomach and digestive viscera, how much more must this determination to the head be increased, if the stomach is overloaded with indigestible food, distended with abundant flatulence, and the whole lower viscera distended and irritated with feculent matter from a previous costiveness of some days' continuance, as often happens. The food received at this crisis, not only contributes to excite the reaction of the heart and arteries by its stimulus, but to increase the obstruction of the visceral functions, as far as it is undigested; and so far as it is digested tends to glut the absorbents and lacteals, thereby increasing the difficulties to free circulation in the viscera. Still more must the effect ensue if the feet continue cold, numb, and deficient in circulation, as is not

unusual after a considerable reaction in the upper and central parts of the body has supervened.

It is precisely in these circumstances, for the most part, that all the symptoms of determination of blood to the head show themselves. Of these, we notice especially, sudden swimmings in the head and giddiness, confusion of mind, drowsiness after dinner, depression of spirits, throbbing in the temples and throat, or sense of choking, great tightness across the chest, deep sighing, nervous agitation, noises in the ears, sleeplessness, anxiety, restlessness, unpleasant dreams, sudden shocks and frights in sleep, night-mare, &c. &c. .

The tendency of the blood to take the direction of the head in excess, is always in proportion to the impaired state of the nervous system, and the weak irritable state of the circulation ; so that whatever causes simultaneously impair the nervous energy, and repel the circulation from the external vessels to the internal organs in excess, and at the same time obstruct and disorder the functions of the alimentary canal, will infallibly induce that determination of blood to the alimentary canal and head, which so often terminates in gout. On these three principles we conceive all the disposing causes of gout to act. 1. Causes weakening the cerebral and nervous powers. 2. Causes disturbing the equable action and distribution of the blood. 3. Causes disordering and obstructing the functions of the stomach, the liver, and the alimentary canal.

There are a variety of ways in which determination to the head takes place in enervated habits ; and this variety depends on the peculiarity of the constitution in other respects, and on the causes which at the time affect the constitution.

We shall, even at the risk of some repetition, illustrate more fully the consequences of collapse from exposure to cold, with repelled circulation, a congestive state of the hepatic and portal circulation, obstructed bowels, and dis-

ordered stomach. Supposing, in these circumstances, the individual, after the exposure, is subject to the reactive influence of heat on *retiring to bed*; while the reaction of the circulation takes place, there exists in the congestive state of the epigastric viscera, and the irritative spasm in which they are involved, from the presence of indigestible food, a serious impediment to the free descent of the blood by the aorta descendens. This partly arises from compression of the arteries, by the pressure occasioned by the continual play of the diaphragm, and also the free return of the blood by the venous branches, and especially through the porta, is thus obstructed. The alimentary canal is distended with food, with fæculent matter, and with flatus: this distension increases the irritative tension of the muscular coats, and greatly increases the impediment to free circulation downwards; add to which, the feet are cold, torpid, and deficient in circulation, while the heart, in the reacting process, is acting with excited force; the progress of the blood upwards by the carotids is perfectly free as usual; the reactive force of the heart, therefore, being always expended in equal impetus towards the aorta descendens and towards the head, in exact proportion as impediment is encountered in the aorta descendens, the impetus from the heart is felt more intensely on the head. And accordingly, every time the diaphragm descends in breathing, the obstruction to the descent of the blood being thereby increased, an unusual arterial impulse towards the head takes place. In this way is explained that throbbing and pulsation in the neck, head, and temples; that sense of fulness and choking in the throat; that drowsy oppression about the head which are so familiar to the gouty invalid after dinner, when he has eat a full meal, and the circulation is excited by wine; and this especially in bed, preventing sleep: and the more so, if during the forenoon he has got wet feet, or been caught in a shower of rain, or been otherwise exposed to cold, so as to produce a general collapse, and a determina-

tion of the blood in excess towards the epigastric circulation. On every attempt at a full breath, there is felt an uneasy oppression on the brain, from the force with which the blood is sent upwards towards that organ, under the increase of the impediment to free circulation downward by the descent of the diaphragm. A tendency to deep sighing is very usual under the circumstances described, which act very materially contributes to direct the circulation towards the brain.

The invalid feels languid, drowsy, and confused, perhaps drops over asleep on his chair after dinner; and when he goes to bed feels the feet numb and cold, the stomach tight and blown out, the breathing slow and heavy, the heart palpitate, the arteries in the upper parts beat full and high, the head swimming, with weight over the back of the head, throbbing temples, noise in the ears, and oppressive drowsiness without the power to sleep. Now these sudden startings, which I have so often adverted to as incident to the gouty, occur precisely at this period when the individual is dropping over asleep; and they afford a very curious explanation of certain morbid results of the conditions just described, which I consider to be intimately connected with the gouty fit.

I have seldom inquired closely into the history of a gouty invalid, without finding that he had been subject to startings in sleep, some time before the gout attacked him, or to night-mare, or convulsive shocks of some kind. I consider these attacks, which have been noticed by several accurate observers, but only in a casual and cursory way, to afford in reality a satisfactory explanation of some obscure points in the pathology of gout.

They indicate at the moment a specific effect on the brain, arising from gastric or visceral irritation. The effect of this irritation being a sudden arterial impetus of blood towards the brain, by which its power and functions are

peculiarly affected, in such a manner as to occasion the gouty peculiarity.

Of the immediate causes of such sudden shocks, the most frequent is a spasmodic effort at stomach: weak, dyspeptic, and nervous constitutions, are particularly subject to spasms at stomach, if they have been exposed to wet feet, or in the rain, the day previous. By such exposures, the circulation is repelled in excess on the gastric vessels, the coats of the stomach in the process of reaction acquire an unusual irritability; and any irritation affecting them causes a violent spasmodic contraction. This is well illustrated in hepatitis, when the liver is obstructed and overloaded with blood, and begins from causes of reaction to acquire an inflammatory sensibility: the stomach participating in this congestion and morbid irritability, is excited to severe vomiting. In like manner, in more chronic obstructions of the liver and dyspeptic stomach, exposures of the feet to wet, by creating a sympathetic torpor of the liver and stomach, and a partial congestion of their vessels, lays the foundation of an inflammatory sensibility, so soon as reaction succeeds. Hence the dull weight and pain under the right short ribs, the sense of tightness and oppression at stomach, and also spasmodic efforts, sometimes hiccup, sometimes eructations, sometimes convulsive heaving or dry vomit, and at other times rigid spasm with excruciating pain.

These spasmodic attacks at stomach, therefore, and parts adjacent, always are connected with gastric irritation and a morbid irritability of the stomachic coats. They take place just at the period when reaction is commencing, after previous collapse and torpor. Whatever, therefore, occasions a torpor of the stomachic nerves, will originate the spasmodic tendency, so soon as reactive sensibility returns. A cold drink, a large draught of porter or ale, soda water, champagne, oranges, and all acids, act on this principle. And there are nervous invalids, with weak dyspeptic sto-

machs, who never dare venture on such liquids without inducing these attacks. They feel no inconvenience perhaps at the moment, but a slight sense of coldness at stomach; but towards evening, or in bed, when reaction is excited, the torpor of the stomach changes into reactive sensibility, and then the spasmody effort ensues. If along with a cold acid drink, the person has been exposed in wet or cold, or has stood on the damp ground, or on a wet day has stood in a cold current, the sympathetic torpor and congestion of the stomach thereby occasioned, tends greatly to increase the hurtful effects of the cold liquids directly applied. Along with the reactive sensibility of the stomach which succeeds, there is a general reaction of the whole circulation, the heart and arteries pulsate vigorously, the feet continue cold and numb, the descending circulation is impeded; and in these circumstances the spasm at stomach, which is similar to an abortive effort at retching, forcibly impedes the descent of the blood by the aorta, and it is projected often with great violence upwards on the brain.

Spasm therefore at stomach, from a previous torpor of the stomachic nerves, either by cold and acids directly applied to them, or indirectly by sympathy with the surface and extremities when exposed to cold and wet, is one frequent cause of determination of blood to the head, so soon as in process of reaction the sensibility of the stomachic coats returns in excess.

There are, however, other ways in which a sudden impulse of blood to the head takes place. Sometimes while the stomach contracts in spasm, the heart undergoes a similar spasmody contraction by sympathy; a violent convulsive throb is felt there, and the head at the moment feels stunned by the forcible impetus of the ascending blood. Sometimes a large meal of indigested food oppresses the stomach, while the individual, wrapped up in warm blankets in an airless apartment, with curtains closely drawn, feels

swollen out with flatulence, a drowsy languor, a tendency to deep sighing; a sudden sense of sinking; an uneasy weight over the head, from the obstruction to free circulation downwards and the excessive direction of blood towards the brain. While dropping over asleep, he is suddenly roused by some fearful dream, and finds himself locked to the couch by incubus, the whole chest feeling compressed as by a powerful hand. This night-mare arises from a spasmodic state of the diaphragm and membranes around the heart, arising by sympathy with the stomach and duodenum excited to spasmodic contraction by the distention of flatus and the irritating products of semi-digested food. The heart's action is for the time arrested, and the blood still obeying the circulating impetus of its last contractions accumulates in the larger vessels near that organ. When its action is again renewed, it throbs violently to rid itself of the excessive mass of blood; and this impulse, while the obstruction in the epigastric region continues, falls directly on the arteries leading to the brain: whence a sudden and forcible convulsive effort at the moment night-mare is yielding, from the sudden impulse on the brain.

There is still another way in which these shocks arise. When a nervous dyspeptic invalid has the circulation habitually directed towards the head, the feet being cold and bloodless, and the stomach and duodenum in a state of congestion, it frequently happens that a spasmodic state of the alimentary canal habitually exists, whereby the muscular fibres, instead of fulfilling their natural peristaltic movements, in obedience to the stimulus of their contents act in rigid and irritative contractions. At the point where these rigid contractions exist, the visceral contents are prevented transit along the canal, the parts feel hard, as if firmly grasping a ball of pent-up flatus. In these circumstances, so long as the contractions continue, the whole stimulus of the visceral contents thus pent up is transferred by sympathy on some distant susceptible part. Where the brain is

deficient in energy, and at the same time from the circumstances already described subject to excess of blood, it possesses that very susceptibility which is favourable to the communication of visceral impressions. The effect of visceral irritations in this way communicated to the brain is to produce often a series of irregular nervous symptoms. The individual will grind his teeth in sleep; he will be subject to convulsive movements and spasmodic tendencies; his jaws will clench suddenly; his feet and arms will sometimes start involuntarily; he will sometimes awake with an involuntary sob or sigh, sometimes in actual convulsion; the heart will sometimes palpitate and flutter unaccountably, or throbings will be excited in particular parts, which as suddenly pass off. Many such nervous symptoms familiar to the gouty are thus accounted for.

Where, from previous spasmodic efforts of the stomach, a violent arterial impetus has been determined to the brain, that organ is afterwards peculiarly susceptible to visceral irritations; and a recurrence of arterial determination to that organ is more easily reinduced. Sometimes this is indicated by a sudden swimming and giddiness of the head; sometimes by a peculiar feeling, as if something rose up the neck and spread over the head internally; sometimes by sudden shocks in sleep, as if the whole blood rushed upwards, taking away for a moment all sense and power of motion; sometimes night-mare, and fits resembling epileptic; often by a sense of fulness and choking in the throat, numbness and confusion in the head, and loss of recollection.

When a morbid sympathy is established betwixt a part of the alimentary canal in a state of congestion and irritative spasm, and the brain also in a state of inordinate sensibility from determination of blood towards it, the bowels require constant use of purgatives to relieve the head; and if costiveness is permitted to continue above a day, the head immediately participates in the disturbance. This

explains the observation (see page 50), how some people suffer so much from costiveness compared with others; and it is remarkable, that when the irritative spasmodic tension existing in a part of the canal subsides, immediate relief is felt at the head; the contents of the canal pass onwards, attended often by a sense of something giving way in the bowels, which is a feeling very familiar to the gouty.

The *circumstances* in which determination of blood takes place to the head therefore, in enervated constitutions, are, *First*, a state of nervous collapse and repelled circulation on the internal parts by exposure of the surface and extremities to cold and wet. *Secondly*, reaction of the circulating actions, while the distribution of the blood is not restored to its due equilibrium. *Thirdly*, a disordered state of the functions of some internal organ, especially of the stomach, liver, and alimentary canal; from a congestive state of the vessels of these parts, and an inflammatory sensibility to irritation, from reaction after previous torpor by cold drinks, or sympathy with the surface, aided by the presence of irritating indigestible food, acrid bile, or retained feculæ.

The *manner how*, is, *First*, the existing obstruction to free circulation by the descending aorta, whereby the excited actions of the heart are directed in excessive impetus in the direction of the ascending carotids. *Secondly*, the increase of this obstruction by sudden and often violent spasmodic contractions of the membranes in the chest, in the diaphragm, of the heart, of the stomach, or of certain parts of the alimentary canal, whereby a determination of arterial impetus takes place towards the brain. *Thirdly*, the same arterial impulse on the brain, sometimes arising from visceral irritation by sympathy, when some part of the canal is in a congestive state and involved in irritative spasm, simultaneously with inordinate sensibility of the brain from a congestive state of that organ.

Our next inquiry is,

2. What effects on the cerebral functions arise from this determination of arterial impetus towards that organ?

When the brain in the way described has become subject to such shocks or concussions from the forcible ascent of blood, a certain specific effect is produced upon it, by which its energy is impaired and its functions disordered; and the consequences of this specific effect on the cerebral functions on the other functions of the body, we conceive to constitute the gouty peculiarity or diathesis.

The force with which the blood is sent upwards by the carotids, causes it to penetrate the minute capillary arteries, distending them to a degree incompatible with the healthy functional power of the part of the brain so affected. At the same time the substance of the brain is in some degree condensed or compressed by the shock: and the result of morbid dissections of old gouty people, in which the brain is found more hard and condensed than usual, confirms this inference.

The first effect on the brain is powerfully sedative, exactly analogous to what takes place in external concussion. We may without impropriety therefore designate by the term concussion the effect of this arterial impetus. The effect is to diminish instantaneously the sensibility of the brain as by a powerful sedative, only more permanently. In this effect the nerves of the system participate, and through their medium the whole functions, vital as well as animal, are more or less affected. Whereas, previous to the spasmodic effort in the epigastric region, the pulse was beating high, full, and free; the body glowing with reactive heat; the head swimming; eyes sensitive to light; ears ringing with confused, rushing sounds; a drowsy oppression, mental irritation, thirst, and febrile irritability, with all the marks of a highly excited sensibility of the brain. The moment the spasmodic effort has taken place, and the blood is directed in forcible current towards the head, the whole sensibility and excitement of the system are instant-

taneously altered ; a numbness, weight, and stupefaction are felt in the head ; this numbness is felt over the whole frame, but generally more on one side than the other. The heat of the body is diminished ; a chill shivering partially wanders over the skin ; the action of the heart is hardly felt ; the pulse is suddenly compressed, slow, and sometimes irregular ; and in short the individual, from a state of high constitutional reaction, exhibits a state of complete and universal collapse. It is the sedative effect on the brain, by the concussion it has just suffered, that occasions these effects ; and the man is in exactly a similar state of the functions which would be produced by accidental concussion externally, with the exception that the local injury is not external. The evil in this case takes place internally, and amounts to a degree of local arterial congestion, *i. e.* the minute arteries into which the blood is forcibly impelled are so distended as to admit more blood than usual, and some one part of the cerebral mass is always more congested than the rest.

This partial congestion of a particular part of the brain affects the nerves leading to some distant part ; and hence arises the numbness, stiffness, and insensibility of particular limbs more than others in such circumstances ; that limb or part always feeling the effect, whose nerves derive their origin from the particular portion of the brain affected by the arterial impetus.

We have said, that the brain suffers a complete sedative effect, so far as regards its functional energy ; and that the whole nervous system participates in this state ; and as the whole functions of the body depend on nervous influence, so the effect is communicated over the whole organic functions.

In tracing these effects, we shall recognize all the peculiarities of functional disturbance already described as characterizing the gouty diathesis. (See description.)

1. The effect on the stomach. The stomach being en-

dued with a peculiar nervous power derived directly from the brain, immediately has its digestive power and nervous tone affected and modified by the arterial concussion of the brain. An extraneous concussion of the brain paralyses the stomachic nerves, and deranges the whole digestive power: violent retching and irritative convulsive heaving of stomach is not unusual as a consequence. So the arterial concussion described reflects an immediate influence on the stomach, by which its nervous tone is impaired, its digestive power suspended, and its functions modified into a morbid character. Previous to the cerebral shock, the stomach was in a state of vascular congestion, and of reactive sensibility succeeding previous torpor. During this reactive excitement, it, in obedience to existing irritation on its coats, assumed a violent and sudden spasmotic contraction, during which the arterial impetus towards the brain took place. The moment the concussion so occasioned takes place, the inordinate sensibility of the stomachic nerves instantaneously subsides, and the organ is deprived of functional power. It is filled with wind, so as to cause a spasmotic tension of its coats. This condition extending more or less to the duodenum and the whole alimentary canal, previously congested and obstructed, the functional and peristaltic actions of the canal are thus obstinately suspended, and the contents pent up become a fruitful source of irritation.

The state of the brain caused by the concussion adverted to shows itself farther in a universal depression of the vital powers, in which the circulation especially participates, with a general defect of heat and sensibility; whence a general numbness, coldness, sense of sinking, apathy, low spirits, languid pulse; a torpid, numb, pasty feel of the skin; and many anomalous nervous symptoms. (See pages 58 to 76.)

These concussions of the brain from the force of the ascending blood almost always take place in the night; for

this reason, that the accumulation of heat in bed excites that reaction after collapse in which the spasmodic efforts we have described are apt to take place.

Where the spasmodic efforts amount to convulsive, epileptic, or hysterical fits, night-mare, &c., as already described, the unhappy invalid, not knowing what is the matter, passes a night of the most gloomy apprehension and horror, with dismal dreams, sudden sensations as if something rose over the head, or, which is a common feeling, a sense as if a pistol were fired in the head, or as if something burst within his head; at other times the concussion takes place unconsciously in sleep, and is only known to have occurred by the uneasy numbness and weight in some part of the head next morning, by the depression of the powers, the diminished heat, the languid, irregular, compressed pulse, the numb hands and feet, the flatulence and constricted feel at stomach; the chill, pasty, torpid skin, and the unusual susceptibility to cold; depression, lowness of spirits, forgetfulness, absence, confusion, or vacuity of mind, or irritability and despondency; the individual feeling himself curiously altered in his whole sensations from yesterday, but not being able to point out one source of uneasiness more than another. Whence the medical adviser is apt to be baffled and misled by the unaccountable and indefinable complainings of the invalid, and is fain to refer to hypochondria and nervousness those expressions of uneasiness, which he cannot trace to any palpable cause. He feels the pulse: it is merely slow, compressed, and somewhat irregular: this is absence of fever at any rate. The skin is cool: the complexion and arterial actions indicate no determination of blood to the head. The tongue is moist, perhaps somewhat coated. There is no thirst, no pain; and in short the functions most essential to health seem little disturbed. The feet and hands, it is true, possess less heat and circulation than natural; but cold feet are so common. Then as for the flatulence at stomach, the cos-

tiveness, and the dyspepsia, these are only the old complaint; and the dryness and torpor of the skin, untinged by a biliary hue, hardly arrests attention. There is, in short, no indication seeming to require active medical measures; no symptom to justify the patient's alarms or complainings. He is in fact merely hypochondriacal, low-spirited, and nervous, and requires to be roused and amused by change of scene, and company, and air, and exercise, and some nervous cordials.

Looking thus with a superficial eye at the case, nothing in fact is to be gathered as to the true origin of his malady. A careful attention, however, to the physiological condition of the frame, and a careful comparison of the state of the functions now with the state in which they were the day before, at once elicits the true state of the case.

A day or two before, he was affected with bile, tenderness and oppression at the pit of the stomach, costiveness, flatulency; perhaps confusion, giddiness, and throbbing about the head, with drowsy languor, thirst, and general febrile oppression. On inquiry it is found he had got cold or chilled, or got wet feet, or had been exposed in rain, or otherwise subject to causes calculated to repel the circulation from the superficial vessels on the internal organs. He has also been indulging his appetite in indigestible food, and in consequence has become affected with symptoms of disordered stomach. He has had restless nights, with febrile heat and irritation, startings in sleep, unpleasant dreams; and, on being closely questioned, can remember some attack in the night of the spasmodic nature above referred to, and from that time he dates his present unaccountable depression and despondency. His system, in fact, is in a state of universal collapse, the consequence of the peculiar sedative impression he has suffered on the brain, and the whole functions of the body participate in the effect, in the manner we have described.

The change on the circulating function produced by the

cerebral concussion adverted to is very marked, and merits prominent attention. Previous to the concussion, the circulating actions are in a state of reactive excitement, the digestive organs and portal circulation in a state of congestion, and there are, from the existing obstructions to the free descent of the blood beneath the epigastric region, symptoms of an excess of blood in the vessels of the head and superior of the body. Drowsiness, giddiness, throbbing in the temples, noises in the ears, flushed face, sense of fulness in the throat, a sense of weight about the chest, mental confusion, an unusual oppression in the head, which is increased on full inspiration, lowness of spirits, sometimes hysterical affections, &c. &c. But so soon as the brain has become subject to the ascending impetus of the blood, the excitement of the circulation instantaneously subsides, the pulse is totally altered in character, as by a universal sedative, the heat and high arterial irritability also subside, and all marks of determination to the head at once disappear; the temples no longer throb sensibly, the forehead feels cool, and even cold and pasty. But the head internally is not relieved, a numbness and weight are there felt, which indicate the impairment of the cerebral energy, from which collapse of the circulation results.

Having thus at some length, although at the expense of considerable repetitions, described the circumstances in which that peculiar state of the brain arises, which we conceive to occasion the gouty peculiarity—we shall sum up those specific consequences on the functions of the body, which constitute the gouty state.

I. The peculiar impairment of the cerebral power, occasioned by the concussion resulting from the determination of arterial impetus we have described, produces a deficiency in the sum of general nervous power.

This is apparent in the general deficiency of heat and sensibility. Whence the vital actions are much more

easily disturbed, as is the case remarkably in gouty invalids.

The same appears in the state of the skin, which is torpid and doughy to the feel, being deficient in nervous power: whence it is extremely susceptible to atmospherical impressions. Of this every gouty invalid is sensible by experience.

There results also a great weakness and numbness in the extremities, with a cold lifeless state of the feet, and especially a weakness in the joints.

In this impaired state of the brain, all mental and moral causes gain an unusual ascendancy over the powers and functions of the body. Whence is explained the mental peculiarities of the gouty.

After the state of the brain adverted to has been induced, the whole of the disposing causes of gout exercise a greater influence in depressing the strength and in disordering the functions of the body.

In like manner, as shall be afterwards shown, the susceptibility of the body to the influence of the various exciting causes of gout is much increased, all of which exert their effects chiefly on the nervous system.

II. A second consequence of the cerebral concussion appears in the state of the circulating function, which is languid and weak, and easily disturbed by slight causes, both in the equable actions of the vascular system, and in the distribution of the mass of blood. Whence arises the facility with which the circulation is arrested in the surface and extremities, and the tendency to local arterial irritability and vascular congestion. Whence also that tendency to general collapse and reaction which characterizes the gouty state.

III. The specific effect of the cerebral concussion adverted to on the nervous power and functions of the stomach and alimentary canal, is another consequence meriting particular attention. It has long been supposed that there

is a mysterious peculiarity of the gouty stomach, different from all other forms of dyspepsia, on which that disease depends. In vain, however, will post mortem dissections be instituted to discover this peculiarity. It consists not in disorder of structure, but in disorder of function, dependent on the state of the brain, from which that organ derives its nervous and functional power. Congestion of the gastric vessels alone, although it creates dyspepsia, is not sufficient to create gout; there must be superadded the specific impairment of the tone of that organ, caused by the peculiarity of the brain we have described. Whence is explained a very interesting practical observation of Dr. Parry, that the dyspepsia attendant on an attack of gout, seems often to be *simultaneous* with the reaction which causes the attack.

This peculiar impairment of the functional power of the stomach, shows itself in the various symptoms of indigestion peculiar to the gouty; abundant acidity, flatus, spasmodic tension of the stomachic coats, sense of sinking, irregular tendencies to spasmodic contraction, a liability to be disordered by the slightest errors in diet, an unusual disposition to torpor from cold liquids directly imbibed, or by sympathy with the surface and feet.

The same appears in the functions of the liver and alimentary canal. A torpid inactive state of the liver, a defective power of assimilation in the duodenum, obstinate torpor and costiveness of the bowels, with a morbid peculiarity of the whole peristaltic actions.

Whereas, previous to the determination of blood to the head, the stomach and alimentary canal were subject to vascular congestion, this state continues after the cerebral functions have been impaired. And as the general powers are weakened in proportion as the cerebral power is affected, and the constitution is thereby more susceptible to the causes usually repelling the circulation from the surface and extremities, so one attack of the nature de-

scribed paves the way for another—the consequence of one not having been recovered from before exposures take place to the causes which at first produced the evil, while the constitution is less able to resist their influence. Whence the growing tenderness and delicacy of gouty constitutions, the yearly increasing susceptibility to the weather, and to the changes of cold and heat, depending on the seasons, and a wet, damp, variable climate, &c.

The stomach and bowels in this way become remarkably affected by every change from heat to cold and cold to heat, and by every exposure to the weather. See p. 47 and 57.

IV. Another general consequence of the deficiency in the sum of general functional power, is an irregularity in the healthy equilibrium of the functions; the reciprocal sympathy betwixt one function and another being greatly increased, insomuch that one function is converted into another from very slight changes in the degree of local excitement, and often almost spontaneously. This is an interesting result, and it is substantiated by many characteristic symptoms of the gouty state. See p. 57, &c.

V. Another specific effect of the impairment of the cerebral power, and of the partial congestion of that organ, as above described, is that certain morbid sympathies are established betwixt various parts or organs, so that any morbid action or condition existing in one organ or part, is with peculiar facility communicated or transferred to other parts or organs by slight determining causes.

This constitutional peculiarity is manifested in the whole phenomena of *gout*, as shall appear in the sequel.

THE END OF PART I.

To be continued.

LONDON :

PRINTED BY CHARLES WOOD AND SON,
Poppin's Court, Fleet Street.



